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From Chief, Research and Evaluation Staff
Health Education Division
Center for Health Promotion and Education

Subject Administrative Reviews and Critique of the Preliminary Version of "A Program Evaluation Handbook for Health Education Programs in Nutrition"

To American Public Health Association Workshop Attendees
CDC-Workshop Attendees

The attached preliminary document is for your technical review and comment only. Questions and suggestions regarding this report should be addressed to me at the following address:

Centers for Disease Control
Center for Health Promotion and Education
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Atlanta, Georgia 30333

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Attachment

READEX FICHE

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(PRELIMINARY VERSION*)

A PROGRAM EVALUATION HANDBOOK
FOR
HEALTH EDUCATION PROGRAMS
IN
NUTRITION

for the

CENTERS FOR DISEASE CONTROL
Center for Health Promotion and Education
Atlanta, Georgia 30333

by

IOX Assessment Associates
Culver City, California 90230

Contract No. 200-81-0622

October 1982

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* This handbook contains measures which have not yet been subjected to empirical verification. A subsequent project to validate the measures for use in health education programs is planned.

PREFACE

In recent years health educators have increasingly recognized the potential of systematic evaluation as a means to both appraise and improve their programs. For this potential to be realized, however, an effective mechanism for gathering relevant data is required. Until now, there have been instances where critical information about a program's effects has not been collected because of a lack of suitable measuring devices for gauging program effects. This handbook was prepared to rectify, at least in part, this deficiency in the evaluation of health education programs in nutrition.

More specifically, in 1980 the United States Centers for Disease Control (CDC) initiated a project to prepare seven collections of measuring devices which could be used by health educators to evaluate their programs. The measures were to be assembled in handbooks which would serve as resources for those wishing to evaluate health education programs in the various fields.[1] The materials contained in the following pages constitute the handbook of evaluation measures for the field of nutrition.

In essence, the project's architects hoped to provide health educators with a range of measurement devices that could serve as possible tools for the evaluation of a particular program. This "menu" of potentially relevant assessment instruments was expected to facilitate the assembly of evidence regarding a given program's effects.

This handbook is not intended to be prescriptive. Those involved in evaluating nutrition programs should regard the handbook only as a resource, that is, a repository of assessment tools which may be of use. The extent to which the handbook is actually useful depends, in large part, on the extent to which there is a correspondence between the intended impact of a given health education program and the outcomes which are assessed by the measures in the handbook.

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[1] The seven handbooks focused on the following areas: alcohol and substance abuse, diabetes, exercise, immunization, nutrition, smoking, and stress management. Information regarding the availability of the handbooks is available from the Centers for Disease Control.

A Capsule History of the Handbook's Creation

The development of this handbook was conducted by an external contractor, selected competitively on the basis of responses to a CDC-issued request for proposals. The contractor was to collect and develop evaluation measures for critical behavioral, knowledge, skill, and affective outcomes in the area of nutrition. A panel of experts was selected to guide the contractor in determining which outcomes were important enough to nutrition health education programs to require assessment devices. Three members of the panel were subject matter specialists. These experts were selected on the basis of suggestions from prominent national associations with a primary mission in nutrition. Nominations were screened to ensure the creation of a panel with a balanced view of the field. So, for example, at least one of the experts represented a national association and at least one possessed direct community level experience in administering local health education programs in nutrition.

In addition to these three subject matter experts, a fourth member of the expert panel was a health education generalist. Nominations for the health educator were solicited from national health education associations. Two specialists in evaluation and testing were also members of the expert panel. Additional subject matter experts representing interested national associations were also invited to serve as panelists. The names and affiliations of the expert panelists in nutrition are provided at the end of the Preface.

The expert panelists met for two days during mid-1981 in order to isolate the chief outcomes which health education programs in the field of nutrition could be expected to promote. After intensive deliberations, preliminary statements reflecting such outcomes were isolated, then set in priority order by the subject matter and health education experts. The evaluation and testing specialists did not participate in this setting of priorities.

The preliminary outcome statements selected by the panel were subsequently refined by the contractor's staff, then mailed to panelists as well as other interested individuals and organizations, all of whom rated the importance of each possible outcome statement. The prioritized list of outcomes that resulted was used to guide the selection and development of measures for this handbook. All newly-developed measures, along with the formal test specifications which were used to prepare them, were reviewed via mail by each panelist. In addition, many of the new measures were piloted on samples of approximately nine individuals. Feedback from these tryouts and the panelists' review was used to revise the new instruments. All of the new measures were also systematically reviewed by members of the contractor's staff in an effort to eliminate any potential sex, race, religious, or socio-economic bias.

While the new measures were being developed, a comprehensive search was conducted to locate existing measures which might match the panel-identified outcomes. The content of all these measures was carefully reviewed to ascertain its match with one or more of the panel-identified outcomes. All existing measures which corresponded to an outcome statement were then reviewed to ensure that they possessed no major technical or psychometric flaws which rendered them unsuitable for program evaluation use. Wherever there was substantial duplication among two or more existing measures, the measure which possessed the strongest supporting psychometric data, or the measure that was clearest and easiest to use, was chosen. All the existing measures which passed both the content screening and the subsequent reviews are included in this handbook.

The Handbook's Contents

There are several sections in the handbook, beginning with this Preface, which is largely an introductory elaboration of the handbook's origin and contents. The handbook's major sections are described below.

Chapter One contains a review of the fundamentals of systematic evaluation as applied to the appraisal of health education programs. Because the handbook will be used by experienced evaluators as well as by health educators with less evaluation background, it is possible that Chapter One's account of program evaluation will be of more interest to some handbook users than to others. Individuals using this handbook can decide whether their conversance with the basics of program evaluation permits them to skim Chapter One or skip it entirely.

Chapter Two describes the nature of the measures included in the handbook. The four different categories of measures found in the handbook are explained, and the interrelationships among these measurement categories are described. The rationale behind the types of measures newly developed for the project is presented. The procedures employed by project staff in locating and screening existing measures are also described.

Chapter Three provides guidelines for using the measures in program evaluation. Included in this chapter are practical suggestions regarding such matters as the selection, administration, and scoring of the handbook's measures.

Chapter Four lists the outcomes identified by the expert panel. The outcomes are presented in their amplified form, and each one is annotated to indicate where in the handbook the newly-developed and/or previously existing measures for that outcome can be found.

In Chapter Five the new measures constructed specifically for this project are presented. All of these new assessment devices are criterion-referenced measures. To facilitate use of the measures, each is preceded by a descriptor page which supplies the title of the measure, the title of the outcome for which the measure was created, and the characteristics of the population with whom the measure is to be used. This descriptor page also presents a brief general description of the measure. It must be stressed that these new measures have not yet been subjected to empirical verification, hence should be regarded as assessment devices whose technical qualities have not yet been verified.

Chapter Six contains the existing measures which were identified as corresponding with panel-approved outcomes. Each measure is preceded by a descriptor page which includes the measure's title, its authors, the type of outcome assessed, and the title of the outcome statement to which the measure corresponds. In addition, a brief description of the measure is provided, along with a summary of relevant information regarding the measure.

To facilitate photocopying and reproduction of the measures in Chapters Five and Six, all descriptive and scoring information has been placed on separate pages. The measures themselves can be readily copied and reproduced by health educators. Handbook users have permission to use all the measures in this collection for health education program evaluation, without needing to seek further permission from any authors or agencies.

In Chapter Seven the test specifications for Chapter Five's new measures are presented. These specifications consist of the rules and content constraints used to generate all new measures for the project. Each set of specifications constitutes the most complete description of the measure for which it served as the blueprint. A complete understanding of Chapter Five's measures is possible only by reviewing Chapter Seven's specifications.

An annotated evaluation bibliography is presented after Chapter Seven, to provide follow-up reading for handbook users who wish to deal at greater length with the topics developed in Chapters One through Three. The annotated descriptions should make it possible for readers to determine whether the cited reference is appropriate for their purposes.

The handbook is concluded with an Index of Measures. This index lists, by title, all of the program evaluation measures contained in this book.

Acknowledgment of Contributors

The following individuals served as expert panelists for this handbook:

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The project which resulted in the creation of this handbook was funded by the Centers for Disease Control in Atlanta, Georgia. The project was initiated by the Research and Evaluation Staff, Health Education Division, of the Center for Health Promotion and Education. Dr. Walter J. Gunn, chief of that group, conceptualized the project, set forth its specifications, and supplied technical guidance throughout the project's existence. The project was originally conceived during conversations between Dr. Gunn and Dr. Carol D'Onofrio of the University of California, Berkeley School of Public Health. Throughout the project, those serving as project officers were Dr. Gunn and Dr. Diane Orenstein of the Centers for Disease Control and Dr. Donald Iverson and Dr. Patricia Mullen of the Office of Health Information and Promotion, Office of the Assistant Secretary for Health, Department of Health and Human Services. The project has substantially benefited from the continuing technical counsel of its project officers.

The handbook itself was developed by the following members of the IOX Assessment Associates: Frank Beaudet, Doris Derelian, Phyllis Jacobson, Rebecca Jaramillo, Elaine Lindheim, W. James Popham, Celia Rodrigo, Laurie Salah, Julie Shaperman, and Elanna Yalow. Robin Harte and Cecilia Marcelino prepared all of the handbook text. Numerous health educators also offered counsel regarding the handbook's measures and introductory materials. Without their expert assistance, development of this volume would have been impossible.

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CHAPTER ONE

PROGRAM EVALUATION CONSIDERATIONS FOR HEALTH EDUCATORS[1]

The development of strategies which might prove successful for program evaluation has received substantial attention in recent years. Many of the recommended approaches to program evaluation have been formally designated as evaluation "models," that is, systematic conceptualizations of the step-by-step manner in which evaluations should proceed. Some approaches emphasize the effects of a program. Others focus on the quality of a program's procedures. Still others primarily attend to the costs associated with a program. Because evaluators now have numerous evaluation approaches from which to choose, today's health educators can select those aspects from the various evaluation models which will prove most serviceable for a given evaluation assignment.

The purpose of this chapter, therefore, will not be to present a particular evaluation model, but rather to focus on considerations central to all evaluations. We evaluate programs in order to find out if they are working and how to make them work better. Sometimes a program evaluation is conducted by an individual not affiliated with the program itself--an individual formally designated as a program evaluator. Far more frequently, a program evaluation is carried out by the program personnel who are actually operating the program. In such instances these health educators simply change roles for a while, exchanging their program implementation responsibilities for program evaluation responsibilities. Thus, whenever the term "evaluator" is used in these introductory chapters, it refers both to the evaluator specialist and to the program staff member serving as evaluator.

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[1] In this introductory chapter an attempt will be made to present a series of salient considerations related to the evaluation of health education programs. But, clearly, it is impossible in a single chapter to discuss all evaluation topics with adequate depth. Hence, a set of references for further reading has been provided. This evaluation bibliography, which has been annotated to provide a general description of each volume's contents, can be found on pages 331-338. Throughout the handbook's early chapters, the reader will be directed to various of these references for further information about the topics being discussed.

Focusing the Evaluation

Effective evaluations help people make better decisions about programs. Anyone setting out to evaluate a health education program, therefore, should be certain to focus the evaluation on the sorts of decisions that are likely to be at issue. This includes getting a clear idea about the purpose(s) of the evaluation as well as identifying the individual(s) or group(s) who will use the evaluation's results.

The nature of the program being evaluated makes a substantial difference in an evaluation's focus. Some health education programs are carried out chiefly to develop and refine the program itself. We can refer to these programs as experimental programs in the sense that they are programs of yet unproven effectiveness. In evaluation studies of experimental programs there is an attempt to isolate the most effective program or the most effective program components. Another type of health education program is a demonstration program, that is, a program in which proven approaches are offered in an effort to secure support or adoption from a larger clientele. Demonstration programs, then, are targeted toward two audiences, the program's participants and the individuals or groups whom the demonstration is supposed to convince. When evaluating demonstration programs, we often attempt to verify whether a program has been disseminated with fidelity to its original conception or, if not, why. Finally, there are service programs in which proven approaches are offered in an attempt to improve the health and well-being of designated target groups. In such programs evaluation often takes the form of monitoring. Two or more of these three types of health education programs can, of course, be provided in combination.[2]

Differences exist in the evaluation activities depending on the purpose of the evaluation, the type of health education program being evaluated, and the nature of the decision-makers for whom the evaluation is being conducted. Too many times program personnel avoid evaluation on the grounds that theirs is only a demonstration program and, hence, needs no systematic appraisal. Or, again, those carrying out a service program might fail to evaluate their efforts because, "after all, we are merely disseminating a proven methodology." But program evaluation is needed for all three kinds of health education programs. The issue is not whether, but how.

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[2] For an extended consideration of these three types of programs, see Gunn, W. J. Evaluation: Proving and improving your programs. A paper presented at the Fifth International Conference on Health Education, London, September, 1979.

Objectives and evaluation. Health education programs come into existence in order to bring about worthwhile effects. Most health education programs, therefore, are organized more or less systematically around some form of program objectives. The more explicitly these objectives are formulated, the more useful they are in carrying out evaluations. Indeed, one consideration in conducting an evaluation is the extent to which a program's objectives have been achieved. It is for this reason that evaluators often work with program personnel in an effort to have those individuals create objectives which describe the desired post-program behaviors (including performance on measuring devices) of program participants.

Too often program designers describe their objectives in such lofty and loose language that it is next to impossible for evaluators, even after the program is over, to tell whether the objectives have been attained.

There is substantially more to program evaluation then merely discerning whether a program's goals have been achieved. For example, there may be program effects, both positive and negative, which although profound were not anticipated in the program's stated objectives. In addition, there is the quality of the objectives themselves. Perhaps the program's goals are truly trivial. A skillful evaluator can profitably work with program personnel to improve the nature of their aspirations. Clarified and more defensible objectives can be a boon to both program personnel and evaluators.

Summative and Formative Functions. Since the expressions "formative evaluation" and "summative evaluation" were introduced over a decade ago, considerable attention has been given to the virtues of each type of evaluation study. In the late sixties and early seventies, a good many evaluators were persuaded of the virtues of summative studies in gauging a program's overall effectiveness. To their distress, however, it often turned out that definitive judgments were difficult to achieve. Rarely did a summative evaluation study settle conclusively whether a given program was sufficiently meritorious to make a go/no-go decision on the basis of that study alone. More often than not, a host of complicating elements proved far more influential in the nature of the final decision than the results of an evaluation study.

As a consequence, it became increasingly clear that, in many instances, formative evaluation studies might prove useful. Formative evaluation is not end-of-the-line evaluation. Rather, such evaluation is an ongoing endeavor as the program is designed, installed, and maintained. Whereas summative evaluation's mission is to provide a final judgment of a program's overall merit, formative evaluation's mission is, on a continuing basis, to bolster a program's quality. The effective formative evaluator functions less as an external judge and more as a collaborator, a member of the team whose task it is to monitor the program in order to improve its quality and the decisions regarding it.

These two evaluative roles are not mutually exclusive. An evaluator's main task is to collect information which is maximally useful in improving the quality of decisions made about programs. Evaluation should identify the areas in which a health education program is having an impact, as well as those in which it is not. Effective components can then be retained; ineffective components can be strengthened or dropped. A mechanism for the systematic collection of information regarding health education programs can provide a solid data base for the continuing refinement of such programs and for improvement in the general level of services provided.

Conducting Evaluation Studies

How can evaluations be conducted so as to achieve their maximum benefits? It is sometimes thought that program evaluations must include complicated and elaborate data-gathering designs in order to yield a decisive and compelling set of data. This is simply not the case. Program personnel and evaluators should strive to conduct their studies and gather data in such a way that the ambiguity of results can be kept to a minimum. That is, evaluations must attempt to determine whether a program works, what makes a program work, or what prevents it from working. Evaluation data-gathering designs serve as the means to this end by delimiting the procedures that will be used to explore the workings and impact of a program.

The conditions under which we gather data will permit us to make inferences about a program's overall impact on participants or, perhaps, the differential effectiveness of the program's various components. To select optimal designs for their investigations, evaluators must have a broad knowledge of the available design alternatives and the strengths and weaknesses associated with each. Evaluators must also work closely with program staff to determine which decision options can actually be illuminated by evaluation studies. The most sensible evaluation study for a given context can then be planned.

Rights of Human Subjects.[3] Health education programs are designed to improve individuals' health and well-being. When we evaluate those programs, therefore, we characteristically focus on the impact of the programs on human beings. Some evaluators, however, become so caught up with the importance of appraising a health education program that they overlook the rights of the individuals being evaluated.

Above all, the evaluator should be guided by a respect for human dignity, hence should not engage in evaluative activities which in any way demean an individual's rights. Prominent among the principles which should guide evaluators is that of informed consent. The principle of informed consent requires that an evaluator secure, in advance of the study, agreement of all participants in an investigation. This consent is obtained after the potential participants have learned about the nature of the investigation, at least insofar as their participation is involved. This principle properly reflects the evaluator's concern for human dignity, since it rules out the possibility of making individuals serve, unknowingly, as subjects in an evaluation.

A key tenet in most ethical codes regarding human subjects insists on the confidentiality of all participant data gathered as a consequence of an investigation. Because the evaluator is not concerned with an appraisal of individual learners but rather with the worth of health education programs, the principle of participant confidentiality usually poses no problems. Evaluators must be careful, however, to devise protective safeguards, such as anonymous completion of forms and careful handling of data, that ensure the confidentiality of the data.

Internal and external validity.[4] Characteristically, an evaluation examines a program's effects in order to determine whether individuals have changed as a result of their participation in the program. The pivotal issue here is whether any observed changes in the status of participants can be attributed to the program. Could other factors such as participant maturation, familiarity with the measures used in the evaluation (testing), or external influences such as a mass media campaign (history), account for the observed changes? An ideal data-gathering design helps rule out viable explanations, other than the program, for measured effects. Such a design deals with the issue of internal validity and addresses the question of whether observed effects can be attributed, with confidence, to the program. Threats to internal validity weaken our ability to attribute the effects that were observed to the program and not other factors.

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[3] For additional information about the rights of human subjects and the ethics of evaluation, see Annotated References Nos. 1, 21, and 30.

[4] For additional information about internal and external validity issues, see Annotated References Nos. 6, 9, and 10.

Another important issue is the external validity of evaluation studies. Can the findings from a specific evaluation be generalized to the next group of participants or to variations of the program (e.g., to a similar health education program in a different school or to the same program held during the following year?) Could we expect the program to have an impact in other settings or at other times? What would be the effects with different participants, modes of presentation, or program personnel? External validity focuses on the need to demonstrate that the observed program effects can be expected to occur under conditions other than the specific instance of the program being evaluated. With external validity, evaluations can serve as more than tributes to successful programs or postmortems for unsuccessful ones by providing useful information as program personnel look to the future.

It is important to distinguish between internal and external validity, for different information may be required to establish each one. A procedure that increases internal validity may weaken external validity. Experimental control, which enhances internal validity, must be weighed against feasibility and generalizability. Evaluators must try to balance the problems associated with threats to internal and external validity, by selecting a data-gathering design that best addresses the information needs of the program and allocating evaluation resources accordingly. These priorities must come from the context of the program itself, since there are instances in which an evaluator should stress one type of validity rather than the other. Emphases on internal or external validity will vary as a function of the program decisions to be made.

Design options.[5] The key to selecting an appropriate evaluation design is to pick the one that best deals with the needs of those involved with a program, such as the program's staff, participants, or funding agency. In some instances, health educators may be interested in the effects of the particular program that they are providing. "Will participants eat properly after attending this program?" In other instances, health educators may be trying to develop model programs that will subsequently be disseminated locally or even nationally. "Can we develop a program that will encourage individuals to eat properly, whether they are teenagers in Duluth, working mothers in Tampa, or retired business executives in New Haven?" An evaluator would have to design very different studies in order to answer these fundamentally different questions. As indicated earlier, health educators must design their studies so that they serve the specific purposes of that evaluation. There is no such thing as a general-purpose evaluation.

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[5] For additional information about evaluation design options, see Annotated References Nos. 6, 9, and 17.

An understanding of a few basic principles can help evaluators select designs well suited to their needs and, perhaps more importantly, determine the limitations of whatever design is implemented. No evaluation study will be perfect. Every study leaves some questions unanswered. Evaluators need to be clear regarding what they have learned about a program and the degree of certainty associated with their findings, then convey this information to other interested audiences.

To illustrate some of the major considerations in selecting data-gathering designs, consider a six-month health education program aimed at modifying Behavior X. If participants' status on Behavior X were measured at the close of the program, we could represent that situation schematically as follows:

Program ——→ Measurement

If this were the design employed, what could you tell about the program's impact on participants' behaviors? Using such a design, how confident would you be that the participants' reported behavior changes were attributable to the program?

It would be difficult to attribute definitively any change in behaviors to the health education program. The program, indeed, may have been totally ineffectual, and participants' post-program behaviors might be identical to those they possessed before the program. The measurement process might be detecting behavioral patterns that participants brought to the program, not those that were affected by the program. Because we have no measure of behaviors prior to the program, we can't distinguish between preexisting behaviors and program effects. Hence, with this data-gathering design, it may be impossible to discern the influence of the program.

But even with such a basic data-gathering design it may be possible to secure meaningful program evaluation data. Suppose, for example, that a health education program is promoting a knowledge outcome so advanced that you expect participants will not be familiar with its content. In that setting one could assume that any post-program knowledge is attributable to the program's impact, because participants would probably not know the information without the program. It might well not be worth the resources necessary to demonstrate conclusively that participants began the program unfamiliar with the outcome's content.

These examples illustrate the chief mission of data-gathering designs, namely, to rule out plausible rival hypotheses, other than the program's impact, that might account for the post-program status of participants. If there is reason to believe that participants' pre-program status may account for their post-program status, then a data-gathering design should be selected which permits the evaluator to rule out that rival hypothesis.

Now suppose that, in order to avoid the major shortcoming of the previous design, we measure participants' behavior both before and after a health education program. We could represent that design as follows:

Measurement ——→ Program ——→ Measurement

Let's assume that the result was a substantial shift toward more desirable behaviors between the initial and the final measurement. Could this change in behaviors be ascribed to the program? We cannot be sure. There are many other factors that may have led to the observed change in behaviors. For example, there may have been a significant event, an event totally unrelated to the program, which influenced participants' behaviors. If the program were designed for children, it may have been that the participants matured during the time frame of the program. Thus it may have been increased maturity rather than the program which caused the altered behaviors. The program itself may have contributed nothing to the shift of behaviors.

But, as was true with the earlier design, if the rival plausible hypotheses for explaining posttest results are accounted for satisfactorily by this data-gathering design, then it is sufficient for the task at hand. In fact, many formative evaluations feature such simple yet serviceable pretest-to-posttest designs involving only one group of participants.[6]

We can eliminate some of the more common rival explanatory hypotheses by using a data-gathering design in which we employ a *comparison or control group*. The use of a control group (untreated individuals) or comparison group (individuals receiving a different program) can be illustrated as follows:

Group 1: *Measurement* → *Program* → *Measurement*

Group 2: *Measurement* ————————→ *Measurement*

In this design, as we see, a control group (Group 2) is assessed before and after the program, but this group never receives the program itself. Under such circumstances we can be more confident that if the program participants' pre-to-post behaviors shift, and the control group's pre-to-post behaviors remain the same, the program caused the shift.

There are, however, some disadvantages to this design. It may be that the initial measurement was *reactive*. A reactive measurement is one which by itself, or in concert with the program, influences participants' behavior. Attitude inventories and self-report questionnaires about behavioral practices are often reactive. Suppose that in this case the pre-program instrument alerted participants to what was to be measured, hence influenced their performance on the second measurement. In addition, measurement is expensive, and measuring control groups can be a relative waste of valuable evaluation resources. Time and money can often be better spent studying the program being evaluated rather than studying a no-treatment control group of little interest. (The merits of comparative designs will be described later.) Health educators should not ritualistically employ control groups in their designs if the question at issue can be answered without their use.

There are situations in which health educators may wish to appraise the effects of their programs on the basis of routinely administered measurements, such as periodically administered questionnaires or the kinds of archival data one often finds recorded in health agencies. For instance, suppose we were evaluating a "parent health awareness" program and were interested in the number of checkups from physicians sought by parents of infants. Assuming that such information is available in the county health department's records, the evaluator may wish to employ a time-series design. In a time-series design we measure at periodic intervals both before and after the program. By observing the pattern of measurements prior to and following the program we can discern if the program had any effect.

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[6] Note that this design requires measurement before as well as after a program. This points to a commonly accepted but often overlooked principle of effective evaluation. Evaluation is most effective when it is initiated at the beginning of a program, often prior to the program's formal inception. If evaluators are not called in until the end of a program, they sometimes serve as little more than test proctors.

To clarify, Figure 1.1 presents three illustrative time-series data patterns of six periodic measurements (M_1 through M_6) taken every two months over a 10-month period. A two-month health education program is offered midway in the time series, that is, immediately following Measurement Number Three (M_3) and just before Measurement Number Four (M_4). Note that the difference between M_3 and M_4 (that is, immediately before and after the program) is identical in all three data patterns. Yet in data patterns A and B we would be reluctant to attribute the M_3 to M_4 growth to the program's effects. In pattern A there are consistent increments over the entire 10-month period, not just the period associated with the program. In pattern B the increments and decrements fluctuate too much. Only in data pattern C could we make the attribution of program effects with some confidence.

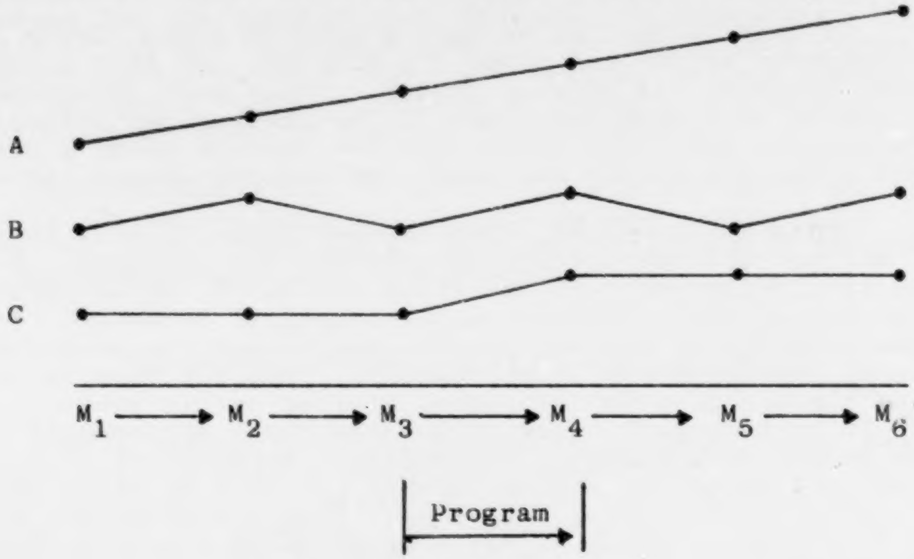

Figure 1.1. Three data patterns from a time-series design.

Although the data analysis procedures associated with time-series designs are fairly complicated, it is often possible to discern program effects merely from inspections of patterns in plotted data such as those shown in Figure 1.1.

In using time-series designs to evaluate programs, health educators must be particularly attentive to the possible contaminating impact of an event, external to the program, that may have influenced the observed data patterns. For instance, referring back to Figure 1.1, suppose that a widely publicized national outbreak of influenza had occurred at the same time that the "parent health awareness" program was being offered. Suppose also that parents were being urged by the media to seek checkups for their infants. Then the growth pattern observed in pattern C might be more associated with that event's effects than with the health education program's effects.

A time-series design, though often used with archival data, can be employed with any sort of periodically gathered data such as routinely administered attitude inventories. A time-series design can be applied to evaluate one program at a time or to evaluate several programs simultaneously. For example, suppose the three data patterns seen in Figure 1.1 were data associated with simultaneously offered programs. In this instance the program yielding data pattern C would be the only one resulting in detectable effects.

In utilizing time-series designs one must be certain to have a reasonable number of measurement opportunities over an extended time period. That is, one would not want to employ such a design unless clear data patterns were possible to discern.

Randomization[7]

In the designs we have discussed thus far, the focus has been on evaluating one program with one group of participants. This may be the situation for many health educators who are only interested in considering the specific program they are providing. But suppose, as we described earlier, you are interested in the general effectiveness of a program which will serve as a model to be implemented in a variety of settings, with different types of participants. How would you design such a study?

One technique that can prove useful in such settings is randomization. We select or assign things randomly when we do so in a nonsystematic manner, such as by using a table of random numbers (found in most statistics texts). When the participants taking part in the program to be evaluated have been selected at random from a larger population of potential participants, then we can be reasonably confident that those involved in the evaluation will be representative of that larger population. There is less likelihood that the participants being studied in the evaluation are atypical, hence inappropriate subjects to include in the study.

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[7] For additional information about randomization, see Annotated References Nos. 6 and 19.

This sort of randomized selection of subjects is particularly important when we wish to generalize from the results of our study to a larger population. This procedure may also be useful when there are more applicants than vacancies for a program or when not all potential clients can be served.

Another use of randomization arises when we determine which of several programs individuals are to receive. If we want to compare the effects of different programs, then we want to be as equivalent as possible. To this end we can employ a randomized assignment procedure whereby we randomly place individuals in the programs to be compared.

The two procedures of randomized selection and randomized assignment are illustrated in Figure 1.2. Note that we randomly select participants for programs from the pool of potential participants, then randomly assign those individuals selected to either Program A or Program B.

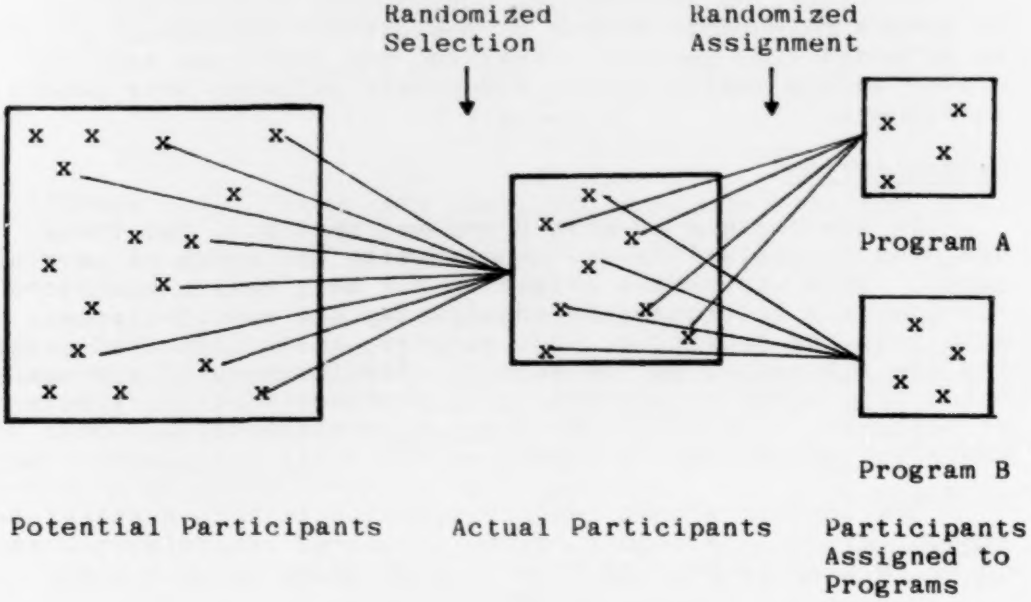

Figure 1.2. Randomized selection of participants from pool of potential participants and randomized assignment of participants to programs.

In actual practice, of course, program personnel often do not have the luxury of constituting groups via randomized selection or assignment, and there are in fact situations where program personnel would not want to use such procedures. As a consequence, we are frequently obliged to use evaluation designs that can help disentangle program effects from preexisting differences either between participants in different programs or between participants and nonparticipants in the same program. Program evaluators should become conversant with such comparative designs and the settings in which they should be used, in order to select a design that will be most effective in forestalling the likelihood that factors other than the program itself accounted for participants' post-program status. Design selection must always be tempered by practical constraints such as available financial resources and the acceptability to program sponsors and participants of randomization techniques.

Comparative designs. The use of comparative designs also can prove helpful in the effort to come up with meaningful data. Comparative designs, in fact, arise because of the basic function of evaluators, namely, to aid decision-makers. Decision-makers ordinarily make selections among alternative courses of action. Ideally, if a decision-maker is choosing between two options, the evaluator should supply evidence as to the merits of each option. For this reason, in designing evaluation studies it is often less sensible to include an untreated control group than to include comparison groups representing the various options under consideration.

For example, suppose that a program developer for a health education project were choosing between two ways of presenting program content such as (1) lectures versus (2) independent study. If possible, the evaluator would consult the research literature regarding the probable virtues of each option. Thereafter a study could be designed in which both strategies, or variations of both strategies, were tried out for a reasonable period of time in order to compare the relative effectiveness of various approaches. In this situation there would be little reason to employ an untreated control group, because it is unlikely that a no-treatment option would be chosen by the program staff.

The data-gathering designs treated here have been relatively simple. There are, however, a number of far more complex designs than we have considered. Inexperienced program evaluators sometimes become so entranced with complicated data-gathering designs that they compulsively apply them whenever carrying out an evaluation study. But evaluators do not need to employ excessively complicated designs. There are innumerable instances when simple data-gathering designs are sufficient.

This is particularly true in formative studies when evaluators are looking for rapid-turnaround data to guide program personnel in making upcoming program decisions. In such settings the evaluator needs to assemble timely decision-relevant information. The use of complex data-gathering designs may, in such circumstances, represent a squandering of evaluation resources. Only when complex designs are needed to eradicate threats to internal or external validity should they be adopted.

Program evaluators frequently also are so concerned about detecting the effects of programs that they fail to consider the costs needed for the programs to produce those effects. Yet decision-makers need guidance regarding not only the results they can expect from a program, but also the financial resources required to achieve those results. For this reason program evaluators should consider the relative costs of programs. To illustrate, how much does it cost Program A to produce a given result in relationship to how much it costs Program B to produce comparable results? Judgments about a program's impact in the absence of considerations about its costs are potentially superficial.

Criterion-Referenced Measurement[8]

Although there are various approaches to program evaluation and each has its own special emphases, there is one common feature of nearly all evaluation approaches. That common feature is the use of systematic evidence regarding a program's effects. To secure evidence of program effects, we characteristically employ measurement instruments. But some instruments are far more suitable for assessing a program's effects than others.

For more than a decade, educational measurement specialists have directed their attention toward an emerging form of assessment known as criterion-referenced measurement. Whereas norm-referenced measurement attempts to ascertain examinees' status in relationship to other examinees, criterion-referenced measurement attempts to ascertain examinees' status in relationship to a clearly defined set of behaviors. In fact, it is because the performances of examinees are interpreted according to a clearly defined domain of criterion behaviors that we say a measure is "referenced" to those criterion behaviors, hence classified as a criterion-referenced measure.

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[8] For additional information about the nature and development of criterion-referenced measures, see References Nos. 4, 18, and 27.

The essence of a criterion-referenced instrument is the clarity with which it describes that which is being measured. Because norm-referenced instruments are relative measures, emphasizing relative comparisons among examinees, they often do not provide a clear description of exactly what it is they are assessing. In contrast, because criterion-referenced instruments are absolute measures, designed to determine exactly what it is that examinees can or cannot do, independent of the performance of other examinees, they should provide an unequivocal description of what they are measuring.

It is this clarity regarding the attributes that they assess that renders criterion-referenced measures ideal for program evaluation. Consistent with the spirit of providing useful information for decision-makers, criterion-referenced instruments describe, with precision, the nature of what is being measured. Hence, when criterion-referenced measures are used in a program evaluation, decision-makers can readily interpret the evidence being supplied.

The best way to describe what a particular criterion-referenced instrument measures is via the test specifications which are developed to generate the items on that measure. Test specifications identify the particular rules and content limits used in constructing a measure. The test specifications operationalize the attributes which are being assessed by delimiting the eligible content and format of the measure.

As with any assessment strategy, there are varying degrees of quality in criterion-referenced measures. Not every instrument described as "criterion-referenced" truly deserves that label. Evaluators of health education programs, therefore, should become knowledgeable regarding the characteristics of high quality criterion-referenced measures. Several dimensions of a properly constructed criterion-referenced instrument are described below.

Clarified descriptions. The single most important element of a properly constructed criterion-referenced instrument is that it adequately describes the attributes it claims to measure. That description, contained in the test specifications, may take a variety of forms. Irrespective of the particular scheme employed, when one reads the descriptive information associated with a criterion-referenced instrument, it must be possible to discern unambiguously what is being measured. By inspecting the test specifications in Chapter Seven the reader can get an idea of the level of descriptive rigor required by criterion-referenced tests.

A manageable number of attributes. Historically, many measures have attempted to cover vast arrays of content. The net effect of this broad coverage has often been that those attempting to use the results from such instruments become overwhelmed by the profusion of discrete attributes being assessed. A properly constructed criterion-referenced instrument will focus on a limited number of dimensions. As a consequence, program personnel can direct their efforts toward those dimensions and evaluators can describe program effects along those dimensions. A criterion-referenced instrument that attempts to measure 10 or 20 discrete outcomes, for example, would likely prove less useful to program personnel and evaluators than an instrument which measures only one significant attribute. In some instances, particularly for diagnostic purposes, it may be helpful to design an instrument that assesses the major subdimensions of a more general attribute. Even in such cases, however, the guiding rule should be to employ only a manageable number of categories.

An adequate number of items per measured attribute. In order for a measure to yield adequate information about examinees' status regarding a given attribute, it is useful to provide multiple instances for examinees to display that attribute. Hence, criterion-referenced measures should provide a reasonable number of test items for the attributes that they measure. It is probably insufficient to attempt to measure a cognitive or affective attribute with one or two test items only. In some cases, a handful of test items per measured attribute or its subdimensions can aid the evaluator in gaining rough estimates of certain program effects. But, generally speaking, at least five to ten items per attribute typically constitute a minimum for measuring significant knowledge, skill, and affective outcomes in the health field.

Reliability.[9] Criterion-referenced instruments, just as norm-referenced instruments, must measure whatever they are measuring with consistency. The consistency with which an instrument measures is known as its reliability. To illustrate, suppose a 30-question knowledge test is administered on a given day, then re-administered to the same examinees five days later, with no intervening instruction. If the test is reliable, we would expect examinees to receive essentially the same scores on both testing occasions. If the test, when re-administered, yields substantially different examinee scores, we know that the test is not measuring with consistency, forcing us to conclude that it is unreliable.

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[9] For additional information about determining the reliability of measuring instruments, see Annotated References Nos. 2, 15, and 27.

There are several different kinds of reliability indices which can be calculated to reflect the consistency with which a given instrument measures, for example, test-retest or equivalent forms reliability. The kind of reliability data needed to appraise a measure for possible use in an evaluation study should be in accord with the way the measure will be used in the study. If a measure is to be used on a test-retest basis in an evaluation, for example, then information about that type of reliability is germane.

All reliability coefficients range from 0 to 1.0, with coefficients of .80 or higher indicating highly reliable measures. Although space limitations preclude a more complete discussion of reliability, evaluators need to become conversant with this key attribute of properly constructed tests. At this point, it must suffice to alert program evaluators to the importance of securing evidence regarding the reliability of any measure to be used in an evaluation study.

Validity.[10] An imperative attribute of a properly constructed measure is that it be valid. An instrument is valid if it measures what it purports to measure. To illustrate, in the health field we often use self-report measures as a way of finding out about individuals' "real life" behaviors. If our self-report inventories are valid, then those measures will secure responses which are accurate indicators of the way that respondents actually behave. To the extent that responses on the self-report measures do not coincide with respondents' actual behaviors, then the measures are invalid.

There are several varieties of validity studies, each yielding somewhat different but conceptually related sorts of evidence about a measure. For example, one approach to validity arises when we use self-report measures as proxies for physiologic measures, such as when we use self-report questionnaires to elicit an account of participants' health behaviors, then attempt to correlate the questionnaire responses with the results of physiologic tests that reveal something about people's actual behavior. If the questionnaire data do, in fact, correlate substantially with the physiologic measures, then the questionnaire is, at least to some extent, validated.

Another approach to validity arises when we use measures as predictors of some subsequent criterion behavior, such as when we try to use responses to an affective inventory gauging one's intention to engage in a particular health behavior as a predictor of individuals' later health behaviors. If the affective measure does, in fact, correlate substantially with subsequent observations of the health behavior, then evidence of the measure's validity has been obtained.

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[10] For additional information about determining the validity of measuring instruments, see Annotated References Nos. 2, 15, and 27.

Absence of bias.[11] In the past decade or two we have become sensitized to the distressing truth that many educational assessment devices contain items which are biased against particular subgroups such as ethnic minorities and women. An example of a biased test item would be a knowledge question which, because of peculiarities in its content or its wording, is more difficult for lower-income examinees to understand and answer correctly. Test items which use content and terminology apt to be known only by the affluent would certainly be biased against the less economically advantaged.

Other sorts of bias which can adversely influence examinees' performances arise when test items are offensive to particular groups of individuals. For example, if test items include content that is seen to be derisive to women or to members of particular ethnic groups, then examinees from those groups are not apt to perform at their best on such items because agitation over the offensive content may interfere with their responses to the items.

A properly developed measure will pay adequate heed to the avoidance of biased items. There are now available both judgmental and empirical techniques for detecting the presence of biased items in measures. One or both approaches should be used to determine the degree of bias in criterion-referenced test items.

In reviewing the various dimensions of a properly constructed criterion-referenced measure, it is important to note that any given instrument may not possess all these qualities. Often one must choose among measures which embody some but not all of these elements. The important point is that merely because a measure is labeled as criterion-referenced does not indicate that it is of sufficient quality to be used with satisfaction in evaluating a health education program. Further scrutiny of the measure's quality is mandatory.

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[11] For additional information about methods for avoiding test bias, see Annotated References Nos. 5 and 25.

Sampling Considerations for Data Collection[12]

The data-gathering requirements of evaluation can, if evaluators are not attentive, become a disruptive and burdensome intrusion into ongoing programs. Accordingly, skillful evaluators should restrict their data-gathering forays to the least intrusive form possible.

One way to minimize an evaluation's intrusiveness is through sampling. Although most people are familiar with the form of sampling that involves selecting some individuals from larger populations of individuals, it is also possible to sample items when administering program evaluation measures.[13]

To estimate how a large group of people would respond on a particular measure, it is not necessary to administer that instrument to all the individuals in the group. Instead, we can sample individuals from the group by selecting either a simple random sample or a random sample stratified on the basis of program-relevant factors such as age, sex, and socioeconomic status. Assuming that the sample is correctly drawn, we can estimate the status of the total group based on the responses of this sample.

In the version of sampling described above, we select representative samples of people to represent a larger population. Suppose, for example, that an evaluator has a measure that is to be used to determine program effects. Assuming a reasonably large number of program participants, say 50 or so, we could randomly administer the measure to one half the participants only. In essence, this approach allows us to infer how the total group of participants would score on the measure although only half of the participants completed it. We could thus estimate how the total group of participants would have responded, yet halve the amount of participant time required for data-gathering.

In a similar sampling procedure, we could administer two or more measures at once. Suppose that two measures, Inventory X and Inventory Y, are to be given to program participants. We can randomly assign one half of the participants to one measure and one half to the other. While each participant needs to respond to one measure only, we can still derive a defensible estimate of how all the participants would have responded to both instruments.

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[12] For additional information about sampling procedures, see Annotated References Nos. 7 and 8.

[13] A measure, such as the criterion-referenced measures found in Chapter Five, generally consists of a group of items, such as questions on a test or statements on an attitude inventory.

In addition to sampling persons, as in the previous examples, it is also possible to sample items so that different sets of items are randomly selected to be administered to different persons. In such an approach we give each program participant only a sample of the items for which we want to obtain evaluation data. For example, suppose a program evaluator wishes to administer a 40-item test. Given, say, 60 participants in the program, the evaluator could divide the test into four sets of 10 items each and administer each set of items to 15 participants. By having the four groups of 15 participants each complete a different set of 10 items, the total group's performance can be estimated. This approach allows the data-gathering to be carried out in one-fourth the time that it would have taken to administer the total 40-item test to all participants.

Given the relatively small numbers of participants in some health education programs, is it really appropriate to sample either persons or items? How large must groups be before sampling procedures can be sensibly used? Although an unequivocal answer to this question would be desirable, such a definitive answer does not exist. Some texts on sampling do provide rules of thumb for estimating the size of samples needed for detecting group differences in relationship to the magnitude of differences sought and the nature of the groups being sampled. At best though, these are rough estimates. It is important to recognize that the task of identifying a sufficiently large sample is more difficult than usually thought.

Intuitively we may recognize that when we start with a very small group of program participants, the use of sampling is risky. For instance, if there were only 15 participants in a program, few health educators would try to split these participants into three groups of five each for purposes of taking different tests. Even though each group represents one-third of the total population, there is too much likelihood that a sample of five individuals does not properly represent the total group.

The variability of participants' anticipated performances on the measures is the primary influence on the sample size necessary. The following example illustrate this principle. If a man's socks were all stored in a drawer, yet there were only black and brown pairs, he wouldn't need to draw out too many pairs until he had a reasonably good idea of the characteristics of the total population of socks in his drawer. But suppose he had socks in 10 different colors. Then he would most likely have to take out many more pairs until he could reach an accurate estimate of the colors of socks in the drawer. In much the same way, if it is expected that participants' scores on a test will be relatively homogenous, then a smaller number of respondents will be needed than if participants' scores are expected to be widely varied.

In considering any of these sampling procedures, it should be noted that the evaluator is essentially focusing on a group of participants _in the aggregate_. Because evaluations are typically concerned with the effects of programs on groups of participants, sampling procedures are usually appropriate. If, however, program personnel need individual data on all examinees on all measures, then sampling is not appropriate.

When to Administer Measures

Decisions regarding when to administer the measures depend on the data-gathering design selected. Conceivably, there are five time periods during which it may be useful to obtain information on participants, and there may be reasons for repeated measurement during some of these periods. These time periods are depicted in Figure 1.3.

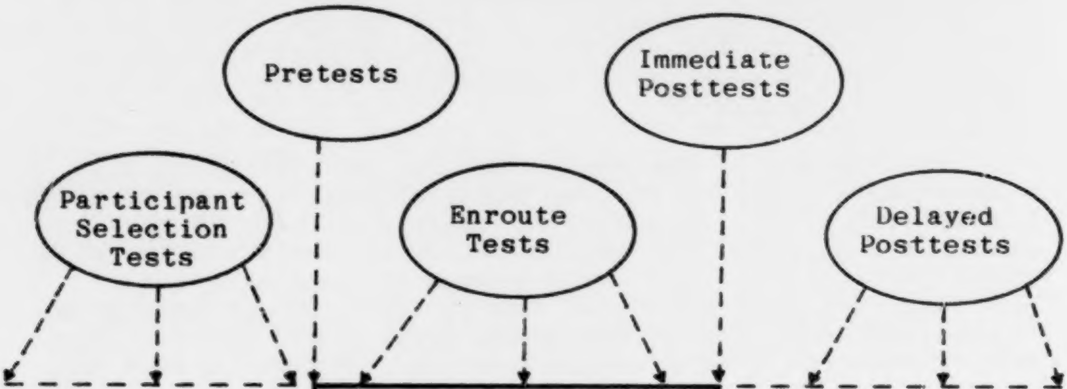

Figure 1.3 Possible measurement times in program evaluation studies.

The first point at which one might choose to obtain information would be prior to the selection of participants. In some health education programs anyone who wants to attend the program is admitted. In other programs there may be more applicants than program openings. Or perhaps there are multiple variations of a program, and different participants must be assigned to different variations. In these latter cases it may be useful to have information to help in the selection of participants. One may want to select as participants those individuals most in need of the program, or those with the most (or the least) perceived ability to attain the behavioral change sought in the program. In any event, information at this juncture may help the selection process become more effective than it might otherwise be.

Often it is useful to have information about participants immediately prior to their starting the program. Such data, often referred to as pretest data, may be used to identify participant weaknesses so that instruction can be targeted directly to those areas rather than emphasizing things that participants already know. Such data may also be used as a baseline, in conjunction with data collected at the end of a program, to determine the impact of the program. If data have already been collected on participants at the selection stage, it might be unnecessary to re-administer measures unless it has been a long time since the initial administration, or unless there are reasons to expect a change in participants' performance.

Measures can also be administered during a program to secure a current reading on the status of participants. Such en route data can be used to redirect program resources during the program itself. One or more en route measurements can provide program personnel with ongoing status checks on participants' progress. Such data may be even more useful than data collected at the end of a program, for they provide information while there is still time to act on it.

Immediate posttest data are data collected directly following the program. Such data may be compared to pretest data in order to provide an estimate of the changes in participants following participation in the program. Participants' posttest performances can also be contrasted with scores from participants in other programs. Such data may also be used by themselves as a measure of the absolute status of participants.

Delayed posttest or follow-up data, e.g., data collected one year after a program's conclusion, are often equally if not more important than immediate posttest data in evaluating a program. Far too frequently data collection efforts are limited to immediate outcomes, when measurement is most convenient. Ultimately, however, program personnel are more interested in effecting long-term behavioral, affective, or cognitive changes. It is sometimes difficult to infer such long-term changes on the basis of information gathered solely at the end of a program. Hence, some follow-up measurement, perhaps repeated, is usually warranted.

Clearly, it is not sensible to administer all measures at all time periods. Evaluators, in collaboration with program personnel and other interested parties, need to select an evaluation design that focuses on the most appropriate times for gathering data. Just as one wishes to avoid administering an overwhelming number of different measures, one also needs to avoid an overwhelming number of administrations. In some situations it may be useful to administer certain measures on a continuing basis (e.g., a behavioral measure), while others might be administered far less frequently. Decisions about when to administer what sorts of measures should be guided by common sense, attentiveness to participants' rights and feelings, and the efficient use of resources.

Data Analysis[14]

A frequent question in evaluation is whether the results of the evaluation are statistically significant. Could observed effects of the program have occurred merely because of the particular sample used in the study? Are the differences so small that they might have occurred simply by chance? Statistical tests are used to answer these questions, and in order to do so these tests make certain assumptions about the data being analyzed.

To illustrate the sorts of assumptions that statisticians make about the data they analyze, we can consider levels of measurement scales. Statisticians draw distinctions between various levels of measurement, that is, data gathered from nominal, ordinal, interval, and ratio scales. Nominal scales classify information into categories without any implied order. For instance, when we categorize individuals into males and females, this is a nominal scale. Ordinal scales rank data in order, such as when we might rank a number of individuals according to their overall healthiness. An interval scale is one which assumes that there are equal intervals between equidistant points on a scale. To illustrate, a 10-point difference between scores of 43 and 53 on a 100-item test about food classification and composition would be considered identical to a 10-point difference between scores of 67 and 77. A ratio scale is an interval scale for which a zero point exists, such as a weight or height scale, in which there is a true zero.

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[14] For additional information about data analysis, see Annotated References Nos. 13, 19, 28, 33, and 35.

When we select statistical techniques, it is important to match the statistical test with the type of data being analyzed. For example, in analyzing nominal data one must use statistical techniques specifically designed for such situations. Chi square, for instance, is one of several frequently employed nonparametric techniques for analyzing nominal data. Other nonparametric techniques are used to analyze ordinal data. A chi square test can be used to compare the actual frequencies in two or more nominal categories with the frequencies which might be expected by mere chance. Chi square, however, would not be a wise choice for analysis of ordinal or interval data because nonparametric tests fail to use all of the available information, hence are typically less powerful than more appropriate alternatives. Thus, one must be certain that the assumptions associated with particular statistical techniques have been satisfied.

The following statistical procedures are ones that are used primarily with interval and ratio data, that is, data which assume equal intervals between points on the scale. Such procedures are known as parametric tests. Cognitive tests are almost always assumed to be interval scales. In addition, attitude scales, although not necessary interval scales, are often analyzed using parametric procedures under the assumptions that the points on the scale reflect equal increments of the characteristic, and that the analyses are only slightly distorted if this assumption is violated. Thus, knowledge, skill, and affective measures are frequently analyzed using the following procedures.

One of the most basic parametric procedures used is a *t* test, which is used to test the significance of the difference between two independent means. (Recall that a mean is the arithmetic average of a group of scores, computed by summing all the scores in a group, then dividing this total by the number of scores in the group.) Suppose, for example, that an evaluation were conducted to compare the effectiveness of two health education programs, and that at the conclusion of each program a knowledge measure were administered to a sample of participants. A *t* test could be used to compare the mean posttest scores of those two programs to determine if observed differences were statistically significant. If there were three or more programs being compared in this way, an analysis of variance (ANOVA) would be used.

Two other techniques, gain scores and analysis of covariance (ANCOVA), are frequently used (and, unfortunately, frequently misused) when both pre-program and posttest data are available for participants in one or more programs.

Both techniques use pre-program information in an attempt to compensate for initial group differences between participants in different programs. So, for example, if an evaluator were interested in determining the degree of attitudinal or cognitive change in participants as a result of a program, the evaluator might compute a gain score (posttest score minus pretest score) as a measure of change. However, dangers associated with the use of gain scores are well documented, and such scores should not be used without considering the ways in which they may be misleading.

ANCOVA is frequently used when an evaluator wishes to compare the mean differences between two or more programs on a posttest measure (as in ANOVA), but recognizes that there may have been preexisting differences among the groups, as identified by a difference on mean pretest scores or demographic differences among groups. ANCOVA compares posttest means after an adjustment to the posttest scores has been made for these preexisting differences. Unfortunately, however, if these differences are systematic and not a function of random differences among groups, ANCOVA does not provide an adequate method for equating the groups. Hence, evaluators and program personnel need to use caution when conducting such an analysis or interpreting results from it.[15]

As one becomes more conversant with the purposes sought by various statistical analysis procedures, it is possible to consider those purposes in relationship to the levels of measurement (e.g., ordinal) required of each procedure so that a routine guide to the selection of statistical procedures is available. For example, the three general purposes of statistical analysis are description, association (correlation), and comparison (difference-testing). We can cross those purposes with the three most common types of data and secure a 3 x 3 table in which, for example, to test the differences between two sets of ordinal data we would use a nonparametric Mann-Whitney test. Such tables are found in numerous statistics texts, including several of those cited in the handbook's annotated references.

Another choice-point faced in the analysis of data concerns the appropriate unit of analysis. Most people are familiar with analysis procedures in which the individual participant is the unit of analysis. Yet, there are instances in which the unit of analysis treated statistically should not be the individual participant but, rather, a group of participants. The guiding principle in selecting an appropriate unit of analysis is that one should choose the smallest independent unit to analyze. To illustrate, suppose a health education program involved the use of peer support discussion groups of 10-12 people each in order to encourage adoption of a given health-related behavior. Because the individuals in each group would surely interact during discussions, hence not be independent, one should consider each group's average score to be the unit to be analyzed. Again, the focus must always be on the smallest independent unit capable of being analyzed.

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[15] There are numerous statistical computer packages and programmable calculators that conduct these and many other statistical procedures for users. To optimize the ease and efficiency of data analysis efforts, evaluators should anticipate likely procedures for analyzing their data and collect data in the manner most compatible with their analysis plan and the available computer software.

Statistical tests only help us detect statistical significance; they do not help us determine whether an observed difference has practical significance. A small difference between the average scores of two groups can be statistically significant, particularly when large numbers of participants are involved, yet be of no practical consequence whatever. Health educators will need to make sensible determinations regarding whether the magnitude of an observed difference, even though statistically significant, is sufficiently important to warrant action. In other words, though evaluators of health education programs should often carry out statistical significance tests, they should not be unduly swayed by the results of such analyses. Common sense must always be applied regarding the meaning of a statistically significant result.

Reporting Results[16]

Reporting the results of an evaluation study is a more difficult undertaking than is usually recognized. Results must be reported to decision-makers in a timely fashion. It does no good to receive an evaluation report three weeks after key program decisions needed to be made. Evaluators must also pay careful attention to the schemes they will use to disseminate their studies to all appropriate audiences. If possible, an evaluator should circulate preliminary drafts of a program evaluation to program personnel so that they can react to its accuracy and objectivity.

The decision-makers whom evaluators are assisting may have little experience with quantitative data. As a consequence, complicated statistical presentations may be of little value to them. Evaluators should select data-presentation procedures consonant with the technical sophistication of the decision-makers involved.

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[16] For additional information about reporting the results of an evaluation, see Annotated References Nos. 21 and 26.

There is nothing wrong with simple graphs or "percentage correct" tables. If Program _Z_ participants outperformed Program _Q_ participants by 15 percent, then a bar graph representing that difference is a readily understood technique for communicating Program _Z_ participants' advantage. (In the creation of such graphic presentations, be certain that the form of the graph accurately represents the data being depicted.) The more intuitively comprehensible the data presentation techniques, the better. Program evaluators should provide straightforward presentations of data, not fear that such approaches will be regarded as too elementary. Adequate technical back-up can be appended elsewhere.

Evaluators should not be afraid of making speculations based upon their hunches about a program so long as such conjectures are identified as such. Similarly, if any of the evaluation's findings are equivocal, then the evaluator should advise concerned audiences of this. Honesty and objectivity are the hallmarks of effective evaluation reporting. In addition, since decision-makers are typically busy people, evaluators should strive for reasonable brevity in their reports. The use of executive summaries to accompany lengthy reports is a useful practice.

The fundamental concern regarding reporting of results is that the whole thrust of the evaluation enterprise is to sharpen the decisions that are made. Decision-making will _not_ be illuminated by incomprehensible presentations. The quality of decision-making can be enhanced only if data are understood.

Linking Measurement and Program Design

As has been stressed earlier, criterion-referenced measures are primarily useful in that they provide a clear description of what is being assessed. Those descriptions can be particularly useful to program designers and program evaluators as they attempt to create programs which focus on promoting certain attributes. To illustrate, one powerful instructional principle for promoting skills involves providing students with adequate "time-on-task." By giving students sufficient time-on-task, that is, sufficient opportunity to practice the skills sought, students can more readily attain those skills. The clarity with which a criterion-referenced measuring instrument explicates the skills that it is measuring makes it possible for program designers to organize instruction that will be congruent with the measures being employed and, thus, enhance the likelihood that program participants will acquire those skills. A health education program's designers should become intimately familiar with an intended posttest's specifications before they put together their program. Clearly described measures can become powerful catalysts to effective program design.

Ideally, the measures used to evaluate a program will have been deliberately constructed so that they not only assess important outcomes, but also so that they assess them in such a way that those outcomes can be promoted more effectively. Part of the challenge in evaluating health education programs is to select criterion-referenced measures which are not merely end-of-program gauges of effects. Instead, measures should be selected which function proactively to guide program designers and program evaluators as they attempt to improve the program's quality.

CHAPTER TWO

A DESCRIPTION OF THE HANDBOOK'S MEASURES

Chapters Five and Six of this handbook contain a number of program evaluation measures. These are measuring instruments which may be employed in the evaluation of health education programs. For the newly developed measuring instruments, one form of a measure is typically provided for use with adults and older adolescents. Where appropriate, a simplified version of that measure designed for elementary grade children is also provided. In this chapter the nature of these measures is briefly described. Several types of measurement strategies not included in the handbook are also discussed.

Varieties of Assessment Instruments

There are numerous ways of classifying measuring devices. Sometimes, for example, tests are distinguished according to the way in which an examinee's responses are scored. To illustrate, we often refer to objectively scored tests such as those consisting of multiple-choice items. We also refer to subjectively scored tests such as essay examinations.

More frequently, however, measuring devices are categorized according to the type of examinee behavior that the measure is designed to elicit. One of the most commonly employed schemes for classifying measures is the three-category division of cognitive, affective, and psychomotor behaviors. A cognitive measure focuses on an examinee's intellectual behaviors. An affective measure deals with one's attitudes, interests, and predispositions. A psychomotor measure gauges one's proficiency in performing small or large muscle skills.

In reviewing the types of outcomes sought by most health education programs, four readily distinguishable categories account for the major outcomes of interest to educators. These four categories have been used in developing and categorizing this handbook's measures.

Four Categories of Measures

The four categories used to classify measures in the handbook are (1) behaviors, (2) knowledge, (3) skills, and (4) affect. It is generally held that individuals' behaviors are influenced by their knowledge, skills, and affective dispositions. Consonant with that view, when the expert panelists isolated outcomes for which measures were to be included in the handbook, they first identified potential behavioral outcomes, then attempted to isolate the knowledge, skill, and affect outcomes which would contribute to each behavioral outcome. Let's look more closely now at each of the four types of measures included in this handbook.

Behavioral Outcomes. Measures for behavioral outcomes attempt to assess the routine behavior of individuals under normal circumstances, such as whether or not individuals eat properly. Most health education programs strive to bring about lasting behavior changes in program participants, hence are ultimately focused on the promotion of behavioral outcomes. For example, a program designed to help individuals eat properly is less concerned with participants' end-of-program scores on a written test about food classification than with their actual food consumption patterns well after the program has ended.

There are several commonly employed data-gathering procedures used to secure information about individuals' behaviors. We can observe peoples' actual behavior (observation), ask them to tell us about that behavior (self-report), or physically monitor that behavior (physiologic indicators).

Evaluators are sometimes intuitively drawn to the virtues of observational approaches because, after all, "if we observe a behavior of interest, then we can be certain that the behavior actually took place." But, intuition aside, there are substantial difficulties with the use of observational techniques in assessing the impact of health education programs. For one thing, it is difficult and often costly to train observers so that they observe the behavior of interest with accuracy and consistency. More importantly, however, in most health settings we are interested in human behaviors that occur at various and unpredictable times over an extended period. Often these behaviors occur in private. Not only would the cost of paying for continuous observations be staggering, but it is clearly impractical (and, possibly, unethical) to observe individuals on an around-the-clock basis.

For some health-related behaviors it is possible to employ physiologic measurements in order to make inferences about the nature of individuals' behavior. A laboratory analysis of a person's blood composition can, for instance, reveal whether that individual has been consuming alcohol. Similarly, other physiologic tests can be used to detect traces of nicotine in the body, hence lead to reasonable conclusions about an individual's smoking behavior. In many instances the cost of using such physiologic measures may be prohibitive for the conduct of routine program evaluations. However, in "high stakes" evaluations, that is, significant evaluations of major impact programs, or when it is relatively easy to administer physiologic measures, evaluators will certainly wish to consider the possibility of employing such measures in lieu of or in addition to self-report or observational techniques.

As with observational techniques and physiologic measures, there are definite problems associated with the use of self-report measures as a way of identifying individuals' behaviors. Not the least of these problems is the possibility for individuals to distort their responses on self-report measures so that they do not reflect actual behavior. Yet, on balance, the use of self-report measures often offers evaluators the best practical method of securing meaningful evidence about the actual behaviors of participants. In light of these practical considerations, therefore, the handbook's newly-developed behavioral measures are all of the self-report variety. A number of recent studies suggest that self-report assessment devices can be effectively employed as supplements to physiologic measures.[1]

Knowledge outcomes. Most health education specialties have a great deal of knowledge, that is, factual information, which must be transmitted to program participants. The evaluator's task is to employ measurement devices which can effectively assess participants' abilities to recall this information. Most such tests consist of objectively-scored paper-and-pencil measures of one sort or another.

Knowledge tests typically pose a variety of questions related to the factual information being assessed. In most of these tests there is substantial ambiguity regarding what information is eligible for testing. Suppose, for example, that an instructor in a nutrition program merely knew that there would be questions on a posttest dealing with weight management. There is simply no way to anticipate the enormous variety of test items which could be constructed. To the extent that the program's quality is being judged, at least in part, by participants' performances on the posttest, the program's evaluation is at the mercy of an item-writer. No one except the item-writer knows for sure what to be tested.

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[1] See, for example, Petitti, D.B., Friedman, G.D., & Kahn, W. Accuracy of information on smoking habits provided on self-administered research questionnaires. American Journal of Public Health, 1981, 711, 308-311.

To counteract this difficulty, all of the knowledge measures specially developed for this handbook consist of test items based directly on a series of statements embodying important factual information related to the content area being tested. All of the test-eligible statements are listed in the sets of test specification used to generate the test items. (See Chapter Seven) In addition, the test specifications set forth the permissible variations of these statements that can be used to create binary-choice True/False items. As a result, both the program's instructional staff and the evaluator possess an unambiguous idea of the universe of content upon which the knowledge tests will be based.

One advantage of using binary-choice test items is that an exhaustive list of all the content eligible for testing can be compiled. An additional advantage of the binary-choice approach to the assessment of knowledge is that if the program is targeted at individuals who do not possess reasonable reading skills (such as, say, limited English-speaking participants), the items can be read aloud to examinees with little increase in the necessary testing time. Reading aloud a series of multiple-choice or matching items would be far more cumbersome.

It is sometimes feared that the results of a binary-choice test may reflect mere chance rather than what examinees actually know, simply because examinees can correctly guess answers at a 50 percent rate. Although it may be true that guessing can play a major role with one or two True/False items, with longer tests the odds of guessing one's way toward success are slight indeed. For example, there is one chance in four that an examinee could correctly guess answers on two binary-choice items. To guess ten out of ten such items correctly, however, the odds shrink to less than one in 1,000. By using binary-choice tests that contain a sufficient number of items, for instance, tests with 20 or more items, we substantially reduce the likelihood that guessing will so influence an examinee's test score that we do not secure a reasonable estimate of that examinee's knowledge.

Because examinees will always be able to guess some items correctly on a binary-choice test, program personnel should not become too jubilant over scores that are slightly above the 50 percent correct expected by chance alone. By using reasonably long binary-choice tests, however, there usually will be more than enough variability in examinee performance to detect differences in the effectiveness of programs.

Skill outcomes. Outcomes dealing with participant skills are those which call for examinees to apply knowledge, not merely recall it. The attributes assessed in the handbook's newly-developed skill measures are all higher order cognitive skills. For example, one's ability to plan a healthy diet would be an example of the type of skill measured by the handbook's skill measures.

These skill measures generally emphasize test items in which the examinee is asked to employ higher order cognitive processes to distinguish among choices in a variety of simulated real-life settings. All of these choices focus on health-related courses of actions that an individual might pursue. In other words, application, not recollection, has been sought in the handbook's skill measures, forcing examinees to employ skills in settings approximating those they would encounter in real life. In many instances the skill measures build directly on the knowledge measure(s) associated with outcomes most closely related to that skill.

Affective outcomes. Affective outcomes refer to the variety of non-cognitive variables, such as attitudes, interests, and values, which are thought to predispose individuals to act in a particular manner. For example, a positive attitude toward the virtues of a healthy diet is thought to dispose a person toward proper eating habits.

Although it is possible to infer the nature of an individual's affective status from observations of that person's behavior, the most common technique for assessing affect involves the use of self-report inventories. The manner in which the items on a self-report affective inventory are constructed yields scores which require either (1) little in the way of inferences to interpret the scores or (2) substantial inferences in interpreting the meaning of the scores. We refer to the former as low-inference self-report measures, and to the latter as high-inference self-report measures.

Low-inference self-report measures typically present respondents with a series of straightforward questions or statements such as those asking for the degree of agreement with positive and negative statements about eating properly. Responses to such measures can be readily interpreted if respondents are telling the truth. To heighten the likelihood of securing truthful responses, those completing affective measures are often directed to return them anonymously.

High-inference self-report measures are typically designed to be less transparent in what they are attempting to measure. To illustrate, if a relationship had been found between a person's ethnic group and their eating patterns, we might ask people about their ethnicity in order to get at their attitudes regarding nutrition. The virtue of high-inference measures is that, because their purpose is masked, it is difficult for the respondent to provide dishonest responses or to respond in the direction deemed desirable. On the other hand, in order to interpret the results from high-inference measures, we often must make quite tenuous inferential leaps. The less obvious the purpose of the items, the less likely that individuals will respond untruthfully, but the greater the required inference.

Because of the interpretation risks associated with high-inference assessment schemes, all newly-developed measures of affect in the handbook employ low-inference strategies. These self-report affective inventories sometimes rely on Likert-type scales wherein the respondent registers varying degrees of agreement/disagreement with statements regarding the affective dimension of interest. In other instances respondents are asked to estimate whether or not they would behave in a certain way (such as eating properly), then are told to indicate the degree of confidence which they have in each such estimate.

In general, it is assumed that a person's knowledge, affect, and skills contribute directly to that individual's behavior. And since most health education programs are ultimately interested in modifying participants' actual behaviors, then the acquisition of appropriate knowledge, affect, and skills can be seen as potentially precursive to the attainment of desired behavior. Thus, in evaluating health education programs that have not succeeded in achieving desired behavioral changes, it is often possible to detect shortcomings in the promotion of en route outcomes dealing with knowledge, skills, or affect.

Other Indicators of Effects

As indicated earlier, this handbook does not contain observational assessment techniques or physiologic measures. It also does not treat measures of health effects which might be used to determine whether health education programs are having their desired impact. Only the previously described behavioral, knowledge, affective, and skill measures have been included. These four categories certainly do not exhaust the range of possible assessment tools that evaluators should consider when they undertake an evaluation. There are numerous other sorts of extant data and assessment strategies which should be thought of as potentially helpful.

As an illustration of the sorts of existing data that evaluators often find useful, we can think of the numerous archival records of relevance to health behavior, e.g., records of doctor's visits. Such archival data can often prove illuminating in making decisions about health education programs. Evaluators must attempt to locate existing records of such phenomena if they pertain to the decisions under consideration.

To illustrate the kinds of more elaborate assessment strategies which might be used, we will briefly describe one technique designed to secure responses to sensitive questions. The randomized response technique (RRT) is an effective technique for obtaining accurate information from respondents on a small number of highly sensitive issues such as the use of illegal drugs or alcohol. By presenting respondents with both a sensitive and a nonsensitive question, and by having respondents themselves use a random procedure (such as a coin flip) to select the "to be answered" question, respondents are expected to answer the sensitive question honestly because the interviewer can not know which question is actually being answered. An example of the non-sensitive question might be "Have you attended a PTA meeting at school during the past 12 months?" The sensitive question might ask, "Have you used heroin during the past 12 months?" An accurate estimate of the number of people responding "yes" to the sensitive question (e.g., the number of people reporting heroin use) can then be computed by subtracting the likely proportion of "yes" responses to the non-sensitive question.

Another assessment strategy involves the use of respondents as "informants" who report information about relatives, friends, etc. Often these reports can be made so that the individual about whom the report is made remains anonymous. This procedure, described as the multiplicity technique by some and the nominative technique[2] by others, is described in more detailed elsewhere.

Previously-Developed Measures

In addition to the development of new measures to coincide with high priority outcomes, an extensive effort was made to identify existing high quality measures which corresponded to these outcomes. This effort included a comprehensive computer search of seven data bases, recommendations of measures from panelists and panel-identified experts, and reviews of books, articles, and instruments submitted by panelists.

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[2] Fishborne, P. Survey techniques for studying threatening topics: A case study in the use of heroin. Unpublished doctoral dissertation, New York University, 1980.

The computer search was conducted at the UCLA Biomedical Library using the following data bases: the Medline, ERIC (Educational Resources Information Center), Psychological Abstracts, Excerpta Medica, NIMH (National Institute of Mental Health), NCMH (National Clearinghouse for Mental Health), and SSIE (Smithsonian Science Information Exchange). In addition to input from the project panelists, area-specific experts and agencies identified during the project were sent summaries of the expert-panel meeting accompanied by a letter requesting assistance in the effort to locate existing measures and relevant publications.

Once collected, all measures were subjected to an initial content screening by an experienced reviewer. The purpose of this screening was to determine whether a measure corresponded to the panel-identified outcomes. Measures which satisfied the outcome congruence screening were then subjected to a further psychometric review. Prior to initiating the review of a measure's psychometric quality, however, the authors or agencies who developed the measure were contacted to request any available supporting documentation or relevant data about the instrument. In addition to being given an overview of the purpose of the project, authors were informed of the criteria to be used in the psychometric review in order to minimize the possibility that they might inadvertently fail to supply relevant data.

The primary criterion for inclusion in this handbook was, ultimately, degree of congruence with priority outcomes. Many measures of high quality had to be excluded because they did not possess sufficient correspondence with these outcomes to be of use to evaluators interested in assessing those outcomes. There are, in fact, several handbook outcomes for which no previously-developed measures have been included, primary because of a lack of existing measures targeted to those outcomes. Where multiple measures with adequate correspondence to given outcomes were identified, the measures included in the handbook were selected on the basis of their item quality and the extent to which the set of measures selected for an outcome represented a range of approaches to the measurement of that outcome.

Test Specifications

For each of the measures developed for the handbook a set of test specifications was created to guide in the construction of the measure. As indicated in the previous chapter, this set of specifications operationalizes the outcome statement for which the measure serves as an indicator. The test specifications for all newly-developed measures are presented in Chapter Seven.

Evaluators and program personnel should find the test specifications of substantial utility, as these documents set forth in unequivocal terms the attributes being measured. This clarification of what is assessed should permit program personnel and evaluators to target their efforts more precisely to the program outcome as operationalized by the set of specifications. While one can employ the measures without referring to the specifications, most users of the measures will be markedly benefited by studying the set of specifications for each measure to be used. Program personnel in particular may want to consult the content supplements and the descriptions associated with many of the measures when planning their program itself.

The test specifications also permit program personnel to generate additional test items, if they so desire, by following the rules for item construction which have been set forth. Additional test items may be particularly useful in conjunction with knowledge and skill outcomes, where they can be employed during the course of a program as instructional tools and to monitor participant progress. Evaluators should realize, however, that any new measures created from the test specifications will not necessarily be equivalent forms, that is, forms equal in difficulty and other psychometric aspects to the forms presented in the handbook. Performance information on both the original form and any alternate forms would have to be gathered before the equivalence of such measures could be demonstrated. Therefore evaluators should be reluctant to use alternate forms as though they are equivalent, for example, in a pretest-posttest design.

To reiterate, then, in Chapters Five, Six, and Seven will be found, respectively, the newly developed measures, the existing measures, and the specifications for the newly developed measures. All of the outcomes upon which these measures are based are presented in Chapter Four. Each chapter is introduced with a brief description of that chapter's contents and an indication of the major descriptive headings contained therein. In Chapter Three suggestions are offered for using the measures in program evaluation.

CHAPTER THREE

HOW TO USE THIS HANDBOOK

Selecting Evaluation Measures

The measures that are selected for a program evaluation should correspond, as closely as possible, to outcomes of interest and importance to program personnel or other decision-makers associated with the program (e.g., the program's sponsoring agency). In some cases the measures may correspond directly to program goals. Other measures may be selected because they correspond to outcomes of ancillary interest. For example, if a program were focused on modifying participants' health behaviors, it might also be of interest to see if attitudinal changes also resulted from the program.

The desire to have a broad understanding of the impact of the program, potentially across all four areas for which this handbook presents measures, must be balanced with the need to avoid unnecessary use of program or evaluation resources. There are likely to be many interesting things about a program that one would like to know. But answering those questions requires the time and money of the program and, most likely, the time of program participants. Because personnel and financial resources are limited, and also because participants may come to resent what they consider to be unnecessary intrusions, measures should be selected carefully. An emphasis should be placed on using those measures that are likely to have implications for improving the program in the future.

One way to use the handbook is to determine the extent to which its outcome statements coincide with a program's stated objectives. Measures for those outcomes can then be considered as possible assessment devices to use in gauging the attainment of program objectives.

Another way to use the handbook is to consider its measures as reflecting possible outcomes that might be promoted by programs. As indicated earlier, program designers can create more effective programs if they comprehend clearly the nature of the targets at which the program is aimed. Although the sets of measures included in this handbook are far from exhaustive and certainly not prescriptive in any sense, they do represent a range of possible program aspirations. Furthermore, the measures are based on outcomes deemed important by a panel of experts well acquainted with health education programs in this field.

By reviewing all of the outcome measures in the handbook, at least by reading each measure's descriptor sheet, program designers and program evaluators can increase the range of options they may wish to consider as potential program outcomes.

Administration Procedures[1]

Evaluators need not develop special sets of directions in order to administer the measures that are presented in this handbook. Directions are provided with each measure, informing respondents how to supply the requested information. Test administrators should be sure to familiarize themselves with the directions and the measure itself before administering it. They can thus provide clear and accurate information to any requests for clarification by respondents.

Test administrators, whether or not they are program personnel, should be sensitive to the potential difficulty some respondents may have in reading either the directions or the test items themselves. Test administrators should be available to assist respondents as needed. It may be useful, if there is concern about the reading ability of the respondents, to read the directions aloud so as to ensure that all respondents understand what they are to do. If there is doubt about the ability of respondents to read the items, the items themselves on most measures can also be administered orally, either to groups of participants or to individuals. Respondents should be encouraged to ask questions if they do not understand their task or any items on a measure.

As a related issue, the measures do not require respondents to supply their names. This was done to help ensure the confidentiality of responses to potentially sensitive issues. If program evaluators believe that the integrity of the data would not be compromised by asking respondents to provide their names or other personal or demographic information, such information may be requested. Alternatively, if evaluators wish to be able to link performance on one measure to performance on another, this may be accomplished by assigning a code number to every individual and having the individual use that code designation whenever providing data. Respondents may also select their own identification code (e.g., mother's maiden name) if this would help alleviate fears about preserving confidentiality. In such cases, it is important that the same code be used consistently on all measures.

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[1] For additional information about administration procedures, see Annotated References Nos. 15 and 27.

The use of anonymously completed measures highlights a general concern associated with the administration of such measures in a program evaluation context. Test administrators should strive to create conditions in which respondents are genuinely comfortable in supplying truthful answers. Too often we find program personnel administering evaluation devices under circumstances which create subtle pressures for participants to respond in a manner satisfying to program staff. An effective evaluation, however, is based on honest responses, not socially desirable ones. Thus, all aspects of measure administration should be conducted with careful attention to the possible impact on participants' responses. For example, an external person rather than a member of the project staff could administer measures. Responses could also be collected anonymously, then placed in sealed envelopes in plain view of all participants. Other such techniques might be devised in order to elicit honest responses. Additional considerations related to possible response bias will be discussed later in this chapter.

Scoring

Scoring keys are provided for all newly-developed knowledge, skill, and affective measures, as well as for all existing measures which had such information available. A more complete justification of the proposed scoring scheme associated with each newly-developed affective measure is also presented in its corresponding test specifications.

As a general rule, knowledge and skill measures are scored by computing the total number of correct responses. Affective measures are scored by computing the average response for a given measure. This procedure for affective measures simplifies interpretation of the obtained score (e.g., a respondent would obtain a score of 4.2 on a 5-point scale, rather than obtaining a score of, for example, 46 out of 55 points). It also reduces confusion in dealing with omitted responses.

On the newly-developed measures, higher scores are better. That is, higher scores on the cognitive measures (knowledge and skills) indicate that the respondents answered more items correctly. High scores on the affective measures indicate attitudes consistent with those promoted by the program (as set forth in the outcome description). A specific scoring key is not provided for behavioral measures, where it should be clear from the items themselves what the desired behavioral change should be.

In addition to considering performance of respondents on the total measure, items on some of the newly-developed affective measures are categorized to permit consideration of the different dimensions in the measure. Hence, part scores as well as total scores can be computed to provide a more in-depth analysis of participants' responses. Similarly, an analysis of incorrect responses is provided on selected skill measures to assist program personnel in determining the kinds of incorrect answers (distractors) that have been selected by examinees. By considering not only whether items were answered correctly, but also by looking for patterns in the incorrect responses, program personnel can often target the program towards reducing common misconceptions. Thus, by using the incorrect response analyses, program personnel may be able to infer why specific incorrect options were selected and also enhance program participants' understanding of the correct response by describing to them the flaws in frequently selected incorrect responses.

Missing data. One of the most frequent sources of confusion in scoring measures stems from the treatment of missing data. For purposes of this discussion we shall consider two types of missing data. The first type of missing data arises when a respondent does not answer certain items on a measure. The second type of missing data occurs when a respondent does not return a measure at all.

In the former case, suppose a respondent omits one or more items on a measure. Should the scorer infer that the respondent didn't read the item, didn't know the answer, or didn't understand the question? The way missing data are treated depends on the type of measure (cognitive, affective, or behavioral), the scoring procedures being used, and the judgment of the person responsible for data analysis. As a general guideline, one should try to treat missing data in a manner consonant with the most plausible assumption about why the data were omitted. A few examples may illustrate.

Blanks or omitted responses are often treated as incorrect responses for cognitive measures (i.e., those assessing knowledge and skill). Respondents' scores are then the sum of the correct responses, under the assumption that respondents would have marked an answer if they felt they knew it. If there are other more plausible assumptions about why a response was omitted, such as confusion about what the question was asking, this approach might not be advised. In that case, evaluators might consider missing and incorrect responses separately, thus creating a slight increase in the complexity of the analysis procedure.

The best procedure for dealing with missing affective responses should, again, be consistent with the general guideline of selecting the procedure that requires the fewest unsubstantiated assumptions about the missing responses. Consider the case in which respondents are asked to indicate the extent of their agreement with a series of statements on, for example, a 5-point Likert scale. Because a score on this measure is obtained by averaging the responses, missing data can usually be ignored, and the respondent's score can be computed based on the items for which there are responses. This assumes that the responses to the unanswered questions are, on average, the same as the responses to the questions that were answered. A different approach may be used if this assumption seems unwarranted. For example, if all the items of a particular type are omitted, it may be unwise to assume that the answers to those items would be the same as the answers to all the other items. In this case, the entire measure may have to be excluded from the analysis.

In affective measures on which respondents are required to estimate their confidence regarding a series of statements, similar procedures for treating missing responses can be used. Hence, in contrast to cognitive measures, respondents are typically not penalized for omitting responses on an affective measure.

The problem of how to deal with missing data when certain participants complete no items on selected measures is a more difficult one than the problem just addressed. That is, what can be done if, because the respondent either refused or was unavailable to complete the measure, we have no data at all regarding a given participant's status on a given outcome? The answer to this question depends on the data-gathering design that is being used and on the most likely reasons that the data were not obtained.

One of the more frequent contexts in which this problem arises is when a pretest-posttest design is used. In this design, measures are administered to program participants prior to beginning the program and, again, at the conclusion of the program. Observed changes between pretest and posttest scores are attributed to the impact of the program. But suppose that some participants do not complete the program and, therefore, are unavailable to complete the posttest questionnaires. Differences between the participants' average pretest scores and their posttest scores may come from systematic differences between the individuals who took the pretest and the individuals who completed the program, hence took the posttest. For example, suppose that, even before a program began, some participants had strong intentions to behave in a healthful way. Others did not. Now, suppose that a disproportionate number of those respondents who did not intend to behave in a healthful way dropped out of the program. If we considered the posttest responses of only those participants who remained in the program for its entire duration, while also considering the pretest responses of all the original participants, we would find that the posttest scores indicated stronger intentions to behave in a healthful way than pretest scores, even if the program had no effect on participants' intentions. This situation would arise because of the elimination of a disproportionate number of respondents who did not intend to change their behavior. Thus, observed changes might be due to differences in respondent characteristics rather than program impact.

To safeguard against this possibility, evaluators must be attentive to the characteristics of respondents, particularly when data at different points in time are compared. In the preceding example, it might be advisable to exclude the pretest data of those participants who did not provide posttest data, and to compute pretest and posttest means on the basis of those individuals for whom complete data exist. To do this would, of course, require using some unique and consistent identification code on all measures completed by each participant so that one could know whose pretest responses should be excluded. If it is necessary to eliminate a particular category of respondents from the analysis, one should be aware of the limitations this imposes on the ability to generalize the findings from the remaining respondents to the broader group of eligible participants. That is, in the preceding example we should only describe the effects of the program on participants who already intended to make the desired behavioral change (remember that a disproportionate number of other participants left the program), not on any person who might consider enrolling in this particular program.

The key issue in deciding what to do when individuals or groups of individuals fail to return selected measures is to determine the extent to which the non-respondents differ in any systematic way from the respondents. Are non-respondents less motivated initially? Do they vary on any major demographic variables, such as sex, ethnicity, or previous education? Are they more knowledgeable about the given health area than those who completed the measures? If the answer to any of these questions is yes, then it is important not to compare all pretest responses with all posttest responses. If, however, there appear to be no systematic differences between those respondents for whom complete data are available and those who did not return all measures, then it may be acceptable to consider all available data. This might be the case if, for example, several participants were sick on the day posttest measures were administered, but the absent respondents did not differ systematically from the other participants. Thus, the degree of attention to this type of missing data depends on the extent to which there is reason to suspect a systematic bias in the findings as a result of the missing information. At the very least, an evaluator should describe the characteristics of the participants who completed the measures at each administration period, so that those using the evaluation report can consider for themselves whether the assumptions guiding the treatment of missing data appear to be justified.

Interpreting Responses

It would be comforting to assume that the data, once collected and analyzed, provide accurate accounts of the respondents' cognitive, affective, and behavioral status. Unfortunately, however, there are many instances in which one cannot be certain that the inferences made from the data are fully justified. For example, in the cognitive areas we assume that the more items correctly answered by an individual, the more that the individual knows about the outcome being tested. But it is also possible, although in this case perhaps unlikely, that some respondents who were highly knowledgeable about the information being tested did not get a high score because they couldn't understand some of the items or had a hard time reading the test. It is the test developer's responsibility to try to reduce such confusion by, for example, ensuring that the items are written as simply as possible and that there are no extraneous sources of difficulty. It is the test user's responsibility to remember that there will inevitably be the potential for some confusion, and to interpret the measures in light of this potential.

This problem is probably more apparent in interpreting affective and behavioral measures. It has been well-documented that there are "response sets" or systematic sources of bias in responses to such measures. To illustrate, one of the best known response sets is social desirability, or the tendency of individuals to provide responses which are consistent with what they believe to be expected of them. So, for example, individuals might indicate that they intend to eat properly, because they believe that it is "appropriate" for them to do so, rather than because they actually have that intention. There is little that one can do to preclude completely the possibility of such response sets. To reduce at least somewhat the likelihood of response sets, evaluators can avoid language which clearly indicates the desired response, preserve the anonymity of respondents, and ensure respondents that the evaluation is more concerned with understanding the program than with describing selected participants. An atmosphere in which honesty rather than "proper behavior" is promoted is definitely conducive to obtaining accurate responses in sensitive areas.

This problem is, perhaps, even more pronounced in behavioral self-report measures, where respondents may misrepresent their behavior. Respondents may be reluctant to admit that they do not eat properly, if they believe that others think that good nutrition is important. Although the measures have been developed to encourage accurate responses, it is the responsibility of program personnel and evaluators to do all that they can to promote accurate responses and to minimize the threat of repercussions should individuals behave in undesirable ways. Guaranteeing anonymity is one common procedure, but establishing credibility with respondents is also critical. In addition, observation, physiologic measurement, and procedures such as the randomized response technique may be used to verify the accuracy of behavioral self-reports.

The problem is not as overwhelming as it may sound. Clearly, whenever one must rely on self-report data there is the possibility of inaccurate responses. But careful measure development can reduce the degree of perceived threat in the measures and this can promote honesty. Furthermore, program personnel can help allay the anxiety of respondents so as to increase honesty of responses. Corroboration, or the threat of corroboration, by an external source can reduce the likelihood that respondents will bias their responses. In addition, many designs compare responses at one point in time to responses at another, or compare different groups of respondents to each other. In these comparative designs, whatever systematic bias there is may be found at all measurement times and, hence, may not influence indices of change. Finally, by being aware that such problems may exist, those who use evaluation measures can encourage caution in interpreting evaluation findings and urge verification of data where it is warranted.

Enriching Evaluations

This handbook provides measures that may be useful in assessing a program's outcomes. Typically, a health educator might select not merely one but several measures to use in a program evaluation. Multiple outcome measures can markedly enhance the quality of an evaluation.

Although the outcomes measured in the handbook have been deemed important, they may not coincide directly with the outcomes of interest to any given program. And they certainly do not exhaust the issues that may be of interest to those individuals involved in a program. Program evaluators and personnel should not limit their data-gathering efforts to the measures provided in this handbook. Rather they should supplement these measures with others that more directly address the particulars of the evaluation settings in which they find themselves.

The emphases of any supplementary evaluation activities should coincide with the information needs and interests of those concerned with the program. Probably the most useful information elicits ways to enhance the effectiveness of the program, either as it has already been implemented or as it will be carried out in similar programs planned for the future. For example, questionnaires may be administered to program participants asking them to identify any follow-up support or information they might need in order to continue to eat properly. Participants might also be able to provide specific suggestions for improvement of the program should it be offered to others.

It is impossible to isolate all the information that might be useful to gather for an evaluation. But the following point cannot be overstated: *Evaluations should focus on the systematic collection of data that can be used to improve the quality of health education programs* and, in turn, the physical and psychological well-being of participants and of the community at large. Evaluation should not be conducted for the sake of evaluation but should be viewed as a tool to enhance the effectiveness of health education programs. It can only fulfill this promise if those guiding the evaluative efforts direct evaluation resources with this goal in mind, and if they use their resources wisely. The measures that comprise the majority of this handbook should provide a solid foundation for effective evaluation efforts. But program personnel and evaluators in the field must structure evaluations to serve the needs of those with a stake in the findings, and their professional insights are likely to be the best guide possible.

Using Unproven Measures

In the remainder of this handbook there are numerous measures available for use by evaluators of health education programs. The measures developed specifically for this project, as well as some of the already existing measures included here, share one substantial shortcoming. They have not been subjected to rigorous empirical investigations to ascertain their psychometric qualities, especially their reliability and validity. When using such measures, how should program evaluators proceed? The answer is all too clear--with great caution.

Although all of the measures included in the handbook were developed with substantial care, until there have been reliability and validity studies carried out which verify those measures' technical adequacy. they should be employed with substantial care. To illustrate, in the absence of reliability and validity data, one should be most reluctant to draw inferences about the meaningfulness of an individual's score on particular measures.

In using measures for purposes of program evaluation, we often aggregate results for a group of participants rather than try to work with individual participants' responses. By using the pooled responses of many individuals, we can have more confidence in the average of the group since anomalous scores will either tend to cancel each other out or be outweighed by the total set of responses. Even with such aggregated scores, however, care is warranted when using measures whose reliability and validity have not been empirically confirmed.

The general caveat regarding the use of measures which have not yet been subjected to empirical analysis is for program evaluators to proceed very carefully in employing such assessment instruments. The new measures that are included in Chapter Five of the handbook were developed with great care, employing a variety of internal and external review procedures to assure that their content and form was appropriate. Yet, although one can have confidence that the process used in their development was systematic and thoughtful, the opportunity to subject those measures to empirical verification has not yet arisen. Such an appraisal of the new measures' technical adequacy is planned for the future. It is likely that the handbook's measures may be superior to the hastily created measures seen so often in the evaluation of health education programs. Nonetheless, evaluators of health education programs should regard the handbook's measures as a resource to be used--but to be used with prudence.

CHAPTER FOUR

PROGRAM OUTCOME STATEMENTS

The outcomes presented in this chapter are program evaluation goals identified by a panel of subject matter and health education experts selected as advisors for this project. The panelists identified two major behavioral outcomes, namely, maintenance of a healthy diet and balancing caloric intake with energy expenditure. Knowledge, skill, and affective outcomes considered likely to predispose individuals to adopt these target behaviors were also selected. The process by which these outcomes were isolated and put in priority order is explained more completely in the Preface to the handbook.

This chapter's program outcome statements have guided the development of the rest of the handbook. Chapter Five presents newly-developed measures designed to assess each outcome. Chapter Six contains previously-developed measures selected for their congruence with the outcome statements. Chapter Seven consists of test specifications for all the newly-developed measures. These specifications define the outcomes, describing the precise nature of each one.

The outcome statements that follow are relatively brief definitions of a particular behavior, knowledge, skill, or attitude considered important for nutrition health education programs. The title of each outcome statement is used throughout the handbook to reference the measures corresponding to it. As a further aid to handbook users, the outcome statements presented in this chapter are accompanied by the titles of the measures that correspond to each one. The target population for each measure is also noted. Handbook users can locate the measures for each outcome on the page specified.

BEHAVIORAL OUTCOMES

MAINTENANCE OF A HEALTHY DIET

Individuals consume a variety of foods in appropriate quantities to maintain ideal weight and meet the nutritional standards of the Recommended Dietary Allowances.

Daily Food Survey . . . . page 57

Target population: Adults or Adolescents

Eating Habits Questionnaire . . . . page 16

Target population: Adults or Adolescents

Your Diet . . . . page 16

Target population: Adults or Adolescents

Nutrient Adequacy Reporting System . . . . page 167

Target population: Adults or Adolescents

BALANCING CALORIC INTAKE WITH ENERGY EXPENDITURE

Individuals achieve an appropriate balance between energy intake and expenditure.

Energy Expenditure Index . . . . page 62

Target population: Adults or Adolescents

Measuring the Body's Energy Needs . . . . page 17

Target population: Adults or Adolescents

KNOWLEDGE OUTCOMES

FOOD COMPOSITION AND GUIDELINES

Individuals can accurately recall information about foods and nutrients, the Recommended Dietary Allowances, and the dietary guidelines related to carbohydrate, fiber, fat, sugar, and sodium intake.

Facts About Foods . . . . page 64

Target population: Adults or Adolescents

Food Facts . . . . page 68

Target population: Elementary school children

Do You Know? . . . . page 173

Target population: Adults or Adolescents

Nutrition Knowledge Test . . . . page 181

Target population: Adults or Adolescents

FOOD GROUPS

Individuals can accurately recall the information needed to plan a nutritionally adequate diet by using a food grouping system. Such information includes the major food categories, the number of servings needed from each category, the serving sizes associated with each category, and representative foods from each category.

Daily Food Guide . . . . page 71

Target population: Adults or Adolescents

Planning What You Eat . . . . page 75

Target population: Elementary school children

NUTRIENT SOURCES

Individuals can accurately recall representative sources for each of the required nutrients listed in the Recommended Dietary Allowances.

Nutrient Sources . . . . page 79

Target population: Adults or Adolescents

HEALTH CONSEQUENCES OF FOOD AND DIET

Individuals can accurately recall information regarding the relationship between foods, dietary patterns, and health. This information includes facts about the functions of key nutrients and the potential adverse effects of inappropriate nutrient consumption.

Nutrition and Health . . . . page 83

Target population: Adults or Adolescents

Food and Health . . . . page 87

Target population: Elementary school children

Nutrition Knowledge (Nutrition, Diet, and Heart Disease) . . . . page 18

Target population: Adults or Adolescents

WEIGHT MANAGEMENT

Individuals can accurately recall the information needed to manage a diet plan designed to achieve or maintain ideal body weight.

Weight Management . . . . page 90

Target population: Adults or Adolescents

SKILL OUTCOMES

DIET PLAN ANALYSIS

Individuals can determine the modifications needed in a typical day's food intake in order to meet the nutritional standards of the Recommended Dietary Allowances.

Maintaining an Appropriate Diet Plan . . . . page 94

Target population: Adults or Adolescents

Nutrition!!! . . . . page 19

Target population: Adults or Adolescents

ANALYSIS OF NUTRITION INFORMATION

Individuals can make decisions about the acquisition/consumption of food based on analyses of nutritional information provided by sources such as food labels, recipes, and diet plans. Foods to be analyzed may include naturally grown foods, food additives, vitamin supplements, processed foods, engineered foods, and fast-food alternatives.

Food Label Information . . . . page 201

Target population: Adults or Adolescents

Big Ideas in Nutrition Education . . . . page 201

Target population: Adults or Adolescents

INTERPERSONAL RELATIONSHIPS: EFFECTIVE COMMUNICATION TECHNIQUES

Individuals can interact effectively with significant others in their lives. The nature of these interpersonal relationships will be such that individuals communicate clear and direct messages in health-related situations.

Communicating About Dieting . . . . page 112

Target population: Adults or Adolescents

Talking About Dieting . . . . page 120

Target population: Elementary school children

AFFECTIVE OUTCOMES

BELIEF IN POSITIVE EFFECTS OF MAINTAINING A HEALTHY DIET

Individuals believe that maintaining a healthy diet is important in the growth and development of children and that it improves one's health, appearance, physical fitness, sense of well-being, and ability to maintain a proper weight.

Ideas About Eating . . . . page 133

Target population: Adults or Adolescents

What Eating Does . . . . page 138

Target population: Elementary school children

Nutrition Opinions (Nutrition, Diet and Heart Disease) . . . . page 20

Target population: Adults or Adolescents

Nutrition Opinions (Nutrition and Eating Habits). . page 20

Target population: Adults or Adolescents

An Attitude Scale . . . . page 20

Target population: Adults or Adolescents

ACCEPTANCE OF A VARIETY OF FOODS

Individuals express a willingness to consume a variety of foods. Such a willingness includes a commitment to taste unfamiliar foods.

Would You Try These? . . . . page 14

Target population: Adults or Adolescents

What Would You Eat? . . . . page 14

Target population: Elementary school children

Food Preference Record . . . . page 21

Target population: Adults or Adolescents

PERCEIVED ABILITY TO MAINTAIN A HEALTHY DIET

Individuals believe that they possess the ability to follow dietary patterns that are healthy and in balance with respect to caloric intake and expenditure.

Eating Correctly . . . . page 14

Target population: Adults or Adolescents

INTENTION TO MAINTAIN A HEALTHY DIET

Individuals believe that they intend to follow dietary patterns that are healthy and in balance with respect to caloric intake and expenditure.

Eating Intentions . . . . page 15

Target population: Adults or Adolescents

RESPECT FOR ONE'S BODY

Individuals are willing to engage in those activities that are indicative of a respect for their body and the need to take care of it.

My Body . . . . page 156

Target population: Elementary school children

Health Attitudes . . . . page 214

Target population: Adults or Adolescents

pages tightly bound

CHAPTER FIVE

MEASURES DEVELOPED FOR THIS PROJECT

This chapter contains all of the measures that have been newly developed to correspond to the program outcome statements listed in Chapter Four. The measures are presented in the same order as the outcome statements, that is, behavioral measures followed by measures of knowledge, skill, and affect. The adult/adolescent version of each measure is presented first. In those instances where a children's measure has also been developed for an outcome, that measure follows immediately after the adult form.

A descriptor page precedes each measure. This page indicates the type of measure (behavioral, knowledge, skill, or affective), the title of the outcome assessed, and the target population for the instrument. A general description is presented, providing an overview of the assessment strategy employed in the measure. Finally, the pages in the handbook where the test specifications for the measure can be found are also cited.

All of the measures in this chapter have been readied for possible photocopying, with directions to respondents printed at the top of the first page of each instrument. Scoring instructions follow all knowledge, skill, and affective measures.

DAILY FOOD SURVEY

TYPE OF MEASURE: Behavioral

OUTCOME ASSESSED: Maintenance of a Healthy Diet

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Individuals are asked to list their previous day's food intake and also to provide information about their current health status and any diet plan modifications they are following. The information gathered by the questionnaire can be used as a measure of how effectively a program has aided individuals in maintaining a healthy and nutritionally adequate diet.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 220-229.

I.D. ____________________

DAILY FOOD SURVEY

Use the Daily Food Record to list all foods you ate yesterday, including all beverages and snacks. Start with the first food of the day. Complete each column as described below. Refer to the examples on the Sample Record to see how to fill out the Daily Record.

WHAT DID YOU EAT OR DRINK?

In this column, list all the foods you ate and all the beverages you drank yesterday. As you can see in the Sample Record, some foods are single items, such as milk or an apple. In some cases, the foods are mixed items, such as a sandwich or a casserole.

Be as descriptive as possible when listing a food item, writing cheese sandwich or tuna casserole.

HOW MUCH?

As the Sample Record shows, in this column give the approximate amount of each food item listed in the WHAT DID YOU EAT column, such as 1 apple, 1 glass (8 ounces) milk, 5 ounces peanuts, 2 cups tuna casserole.

WHAT WAS IN IT?

In this column, give detailed descriptions of any mixed items listed in the WHAT DID YOU EAT OR DRINK column. List all the single foods contained in each as shown in the Sample Record. For example, if cheese sandwich is listed in the first column, then American cheese, wheat bread, butter, lettuce, and salt might be listed in this column.

If you don't know all the single foods in any mixed food, write down as many as you know, and write DON'T KNOW at the end of the list if you think that there were others. (See tuna casserole example in the Sample Record.)

HOW MUCH OF EACH?

In this column, give the approximate amount of each food listed in the WHAT WAS IN IT column. For example, the following amounts are listed for the cheese sandwich in the Sample Record: 1 ounce American cheese, 2 slices wheat bread, 1 tablespoon butter, 1/4 cup lettuce, dash salt.

If you do not know an amount, write DON'T KNOW in the column next to the food item you are unsure about. (See tuna casserole example in the Sample Record.)

ADDITIONAL INFORMATION

In this column, provide any additional information you can about each food's special characteristics, packaging, and preparation.

Special characteristics includes ways in which a food may be processed to change its nutritional value (e.g., non-fat, low sodium, enriched). Packaging describes the form in which a food is purchased (e.g., frozen, canned, dried). Preparation describes how a food is cooked (e.g., boiled, fried, baked).

Now, please use the Daily Food Record to list all of the foods you ate or drank yesterday. Use additional paper, if needed.

SAMPLE RECORD

WHAT DID YOU EAT OR DRINK?	HOW MUCH?	WHAT WAS IN IT?	HOW MUCH OF EACH?	ADDITIONAL INFORMATION
Cheese sandwich	1	American cheese	1 ounce	
		Wheat bread	2 slices	toasted
		Butter	1 tbsp.	
		Lettuce	1/4 cup	
		Salt	dash	
Potato chips	1 small bag (about 20 chips)			
Apple	1			
Milk	1 glass (8 ounces)			low-fat
Peanuts	6 ounces			unsalted, dry roasted
Soft drink	1 can (12 ounces)	Orange soda		diet brand
Tuna casserole	2 cups	Tuna	3 ounces	canned in water
		Macaroni	1 cup	boiled
		Peas	1/2 cup	frozen
		Cream sauce	Don't know	
		Don't know		

DAILY FOOD RECORD

WHAT DID YOU EAT OR DRINK?	HOW MUCH?	WHAT WAS IN IT?	HOW MUCH OF EACH?	ADDITIONAL INFORMATION

Please complete the questions on the next page.

Please answer the following questions as accurately as you can.

Age __________ Height __________ Weight __________

(Check one) ____ Male
____ Female
____ Pregnant female
____ Nursing mother

Check any special diet plans that you are following (You may check more than one):

____ Low salt (sodium)
____ Low fat
____ Low cholesterol
____ Low carbohydrate
____ Low protein
____ Low fiber

____ Weight loss
____ Weight gain
____ Diabetic
____ Other (please describe)
____
____

List any foods to which you are allergic or any conditions which affect what you eat: ______________________________
____
____

You have completed the Daily Food Survey. Thank you.

ENERGY EXPENDITURE INDEX

TYPE OF MEASURE: Behavioral

OUTCOME ASSESSED: Balancing Caloric Intake with Energy Expenditure

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Individuals are asked about their daily activity and exercise patterns. This information, when used in conjunction with the information from a daily food intake measure such as the Daily Food Survey, can be used to determine how effectively a program has aided individuals in achieving an appropriate balance between energy intake and expenditure.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 230-231.

I.D. ____________________

ENERGY EXPENDITURE INDEX

Please answer the following questions as accurately as you can.

1. Which one of the following best describes the level of physical effort in your daily activities?

____ Light (such as office work, driving, sitting)

____ Medium (such as housework, carpentry, walking)

____ Heavy (such as pushing or carrying heavy objects)

2. How many times a week do you usually exercise? ________

3. How strenuous, on average, is your exercise session?

____ Light activity (small increase in breathing rate)

____ Medium activity (some increase in breathing rate; some perspiration)

____ Heavy activity (large increase in breathing rate; heavy perspiration)

4. How long (in minutes) does each exercise session usually last? ________

6. What types of activities do you usually do for exercise?

____

____

____

____

You have completed the Energy Expenditure Index. Thank you.

FACTS ABOUT FOOD

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Food Composition and Guidelines

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Individuals are presented with statements about food nutrients, the Recommended Dietary Allowances (RDA), food classification systems, dietary guidelines, and the effects of food preparation. Individuals indicate whether each statement is true or false.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 232-241.

FACTS ABOUT FOOD

This test consists of 20 statements about foods and nutrients. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.

TRUE FALSE

____ ____ 1. It is recommended that not more than 20% of a person's calorie intake come from refined and processed sugars.

____ ____ 2. A single food can supply all the nutrients that a person needs in order to meet the Recommended Dietary Allowances (RDA).

____ ____ 3. People's daily requirement for salt will be met without adding salt to food when it is eaten.

____ ____ 4. Saturated fats are fats which are usually obtained from plant sources such as corn (corn oil).

____ ____ 5. Saturated fats are usually solid at room temperature.

____ ____ 6. Fiber is a family of complex carbohydrates which humans are not able to digest.

____ ____ 7. A person who selects foods according to their nutrient composition will be unable to plan a diet that meets the RDA standards.

____ ____ 8. In order to meet the RDA standards, a person must eat a variety of foods.

____ ____ 9. Steaming foods such as vegetables prevents the loss of nutrients.

____ ____ 10. There are known advantages for healthy people to consume nutrients in amounts greater than that recommended by the RDA.

TRUE FALSE

____ ____ 11. Fruits contain complex carbohydrates.

____ ____ 12. An extra supply of one nutrient cannot make up for a shortage of another one.

____ ____ 13. Vitamins contribute energy to a person's diet.

____ ____ 14. About 50% of a person's recommended calorie intake should come from fats.

____ ____ 15. Frying a food may destroy some of the nutrients found in that food.

____ ____ 16. Naturally occurring sugars are sugars that are added to a food, not part of it.

____ ____ 17. Flavored yogurt is a food that has a low sugar content.

____ ____ 18. The greater the variety of foods a person eats, the less risk there is of developing a deficiency of any one nutrient.

____ ____ 19. Complex carbohydrates and naturally occurring sugars should make up about half (48%) of a person's recommended calorie intake.

____ ____ 20. Foods which are baked increase in fat content.

SCORING KEY
FACTS ABOUT FOOD

Item	Answer
1	F
2	F
3	T
4	F
5	T
6	T
7	F
8	T
9	T
10	F
11	T
12	T
13	F
14	F
15	T
16	F
17	F
18	T
19	T
20	F

FOOD FACTS

TYPE OF MEASURE:	Knowledge
OUTCOME ASSESSED:	Food Composition and Guidelines
TARGET POPULATION:	Elementary school children

GENERAL DESCRIPTION:

Children are presented with statements about nutrients, the Recommended Dietary Allowances (RDA), and the dietary guidelines. Children indicate whether each statement is true or false.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 242-249.

FOOD FACTS

This test has 15 sentences. If the sentence is correct, put a check under the word TRUE. If the sentence is incorrect, put a check under the word FALSE.

TRUE FALSE

____ ____ 1. The body needs nutrients in order to repair itself.

____ ____ 2. All nutrients can be found in food.

____ ____ 3. Carbohydrates do not add energy to a person's diet.

____ ____ 4. Vitamins add energy to a person's diet.

____ ____ 5. The Recommended Dietary Allowances (RDA) tell the kinds and amounts of nutrients needed by nearly all healthy people.

____ ____ 6. Most foods contain only one nutrient.

____ ____ 7. A person needs to eat different kinds of foods in order to meet the RDA.

____ ____ 8. About two-thirds of a person's diet should come from complex carbohydrates and natural sugars.

____ ____ 9. Raw fruits and vegetables are low in fiber.

____ ____ 10. Refined sugars should make up no more than 10 percent of a person's diet.

____ ____ 11. Soft drinks contain a large amount of refined sugar.

____ ____ 12. Fats should make up no more than 50 percent of a person's diet.

____ ____ 13. Nuts contain a large amount of fat.

____ ____ 14. People will get enough salt without adding salt to the food they eat.

____ ____ 15. Hot dogs contain very little salt.

SCORING KEY
FOOD FACTS

Item	Answer
1	T
2	T
3	F
4	F
5	T
6	F
7	T
8	F
9	F
10	T
11	T
12	F
13	T
14	T
15	F

DAILY FOOD GUIDE

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Food Groups

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Individuals are presented with statements about representative sources, serving sizes, number of daily servings, and key nutrient contributions for each of five food groups. Individuals indicate whether each statement is true or false.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 250-256.

DAILY FOOD GUIDE

This test consists of 20 statements about the food groups. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.

TRUE	FALSE		
____	____	1.	Two cups (16 ounces) of milk equals one serving from the milk and milk products food group.
____	____	2.	Individuals of all ages should have four servings per day from the bread and cereal food group.
____	____	3.	Individuals of all ages should have four servings per day from the meat and meat alternates food group.
____	____	4.	Foods from the meat and meat alternates food group have large amounts of protein.
____	____	5.	Yogurt is a food in the fats, sweets, and alcohol food group.
____	____	6.	Potatoes are a food in the vegetable and fruit food group.
____	____	7.	One-half of an average size fruit equals one serving from the vegetable and fruit food group.
____	____	8.	Foods from the bread and cereal food group have large amounts of carbohydrate.
____	____	9.	Individuals of all ages should have two servings per day from the vegetable and fruit food group.
____	____	10.	Rice is a food in the bread and cereal food group.

TRUE FALSE

____ ____ 11. Adult men should have two servings per day from the milk and milk products food group.

____ ____ 12. Seaweed is a food in the meat and meat alternates food group.

____ ____ 13. Buttermilk is a food in the milk and milk products food group.

____ ____ 14. Adult men should have servings from the fats, sweets, and alcohol food group only if they have calories left in their daily allowance after including the recommended number of servings from the other food groups.

____ ____ 15. Foods from the milk and milk products food group contain Vitamin C.

____ ____ 16. Foods from the vegetable and fruit food group have large amounts of fat.

____ ____ 17. One slice of bread equals one serving from the bread and cereal food group.

____ ____ 18. Foods from the fats, sweets, and alcohol food group have large amounts of calcium.

____ ____ 19. Six ounces of cooked poultry equals one serving from the meat and meat alternates food group.

____ ____ 20. Serving sizes are not established for the fats, sweets, and alcohol food group.

SCORING KEY
DAILY FOOD GUIDE

Item	Answer
1	F
2	T
3	F
4	T
5	F
6	T
7	F
8	T
9	F
10	T
11	T
12	F
13	T
14	T
15	F
16	F
17	T
18	F
19	F
20	T

PLANNING WHAT YOU EAT

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Food Groups

TARGET POPULATION: Elementary school children

GENERAL DESCRIPTION:

Children are presented with statements about representative sources, serving sizes, number of daily servings, and key nutrient contributions for each of five food groups. Children indicate whether each statement is true or false.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 257-263.

PLANNING WHAT YOU EAT

This test has 20 sentences. If the sentence is correct, put a check under the word TRUE. If the sentence is incorrect, put a check under the word FALSE.

TRUE FALSE

____ ____ 1. Children should have three servings each day from the milk and milk products food group.

____ ____ 2. Foods from the vegetable and fruit food group contain fiber.

____ ____ 3. One cup of cooked vegetables is one serving from the vegetable and fruit food group.

____ ____ 4. Children should have two servings each day from the bread and cereal food group.

____ ____ 5. Cheese is a food from the milk and milk products food group.

____ ____ 6. Children should have six servings each day from the vegetable and fruit food group.

____ ____ 7. Foods in the fats and sweets food group do not have serving sizes given.

____ ____ 8. Foods from the meat and meat alternates food group have large amounts of carbohydrate.

____ ____ 9. Yogurt is a food from the vegetable and fruit food group.

____ ____ 10. One cup (8 ounces) of milk is one serving from the milk and milk products food group.

TRUE FALSE

____ ____ 11. Children should have two servings each day from the meat and meat alternates food group.

____ ____ 12. Foods from the bread and cereal food group contain fat.

____ ____ 13. Foods from the fats and sweets food group should be eaten only when you have enough servings from all the other food groups.

____ ____ 14. Rice is a food from the bread and cereal food group.

____ ____ 15. Two eggs are one serving from the meat and meat alternates food group.

____ ____ 16. Butter is a food from the fats and sweets food group.

____ ____ 17. Two slices of bread are one serving from the bread and cereal food group.

____ ____ 18. Foods from the milk and milk products food group contain iron.

____ ____ 19. Foods from fats and sweets food group contain large amounts of protein.

____ ____ 20. Chicken is a food from the meat and meat alternates food group.

SCORING KEY
PLANNING WHAT YOU EAT

Item	Answer
1	T
2	T
3	F
4	F
5	T
6	F
7	T
8	F
9	F
10	T
11	T
12	F
13	T
14	T
15	T
16	T
17	F
18	F
19	F
20	T

NUTRIENT SOURCES

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Nutrient Sources

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Individuals are presented with statements about representative sources for nutrients listed in the Recommended Dietary Allowances. Individuals indicate whether each statement is true or false.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 264-268.

NUTRIENT SOURCES

This test consists of 20 statements about foods and nutrients. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.

TRUE FALSE

____ ____ 1. Lamb is a good source of zinc.

____ ____ 2. Poultry is a good source of pyridoxine (B_6).

____ ____ 3. Salad dressing is a good source of fat.

____ ____ 4. Cheese is a good source of carbohydrate.

____ ____ 5. Nuts are a good source of Vitamin A.

____ ____ 6. Fish is a good source of iodine.

____ ____ 7. Enriched bread is a good source of folic acid (folacin).

____ ____ 8. Yogurt is a good source of riboflavin (B_2).

____ ____ 9. Broccoli is a good source of niacin.

____ ____ 10. Cabbage is a good source of Vitamin C.

____ ____ 11. Vegetable oil is a good source of Vitamin E.

TRUE FALSE

____ ____ 12. Whole grain bread is a good source of calcium.

____ ____ 13. Leafy vegetables are a good source of Vitamin B_{12}.

____ ____ 14. Beef is a good source of magnesium.

____ ____ 15. Eggs are a good source of carbohydrate.

____ ____ 16. Fish liver oil is a good source of Vitamin D.

____ ____ 17. Citrus fruits are a good source of Vitamin B_{12}.

____ ____ 18. Pork is a good source of iron.

____ ____ 19. Cream is a good source of protein.

____ ____ 20. Potatoes are a good source of thiamin (B_1).

SCORING KEY
NUTRIENT SOURCES

Item	Answer
1	T
2	T
3	T
4	F
5	F
6	T
7	F
8	T
9	F
10	T
11	T
12	F
13	F
14	F
15	F
16	T
17	F
18	T
19	F
20	T

NUTRITION AND HEALTH

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Health Consequences of Food and Diet

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Individuals are presented with statements about health consequences related to nutrition. Individuals indicate whether each statement is true or false.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 269-277.

NUTRITION AND HEALTH

This test consists of 20 statements about nutrition. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.

TRUE FALSE

____ ____ 1. Water is a nutrient.

____ ____ 2. Most of the health risks associated with being overweight remain even after the excess weight is lost.

____ ____ 3. Improper diet is one of the causes of malnutrition found in heavy drinkers.

____ ____ 4. Eating foods high in fiber may increase the symptoms of chronic constipation.

____ ____ 5. Heart attack is linked at least in part to diet.

____ ____ 6. The B vitamins are important for healthy nerve tissue.

____ ____ 7. The body's cells receive oxygen carried by iron in the blood.

____ ____ 8. A low salt intake is associated with high blood pressure in people who are susceptible to the disease.

____ ____ 9. Excess weight is the most common nutritional problem in the United States.

____ ____ 10. Vitamin D helps regulate body temperature.

TRUE FALSE

____ ____ 11. A person who consumes more calories than are used in physical activity will lose weight.

____ ____ 12. Cardiovascular disease is associated with too little fat in the diet.

____ ____ 13. The likelihood of getting sick increases when the diet is inadequate.

____ ____ 14. Minerals work to regulate body processes.

____ ____ 15. Fat is used by the body to form antibodies in the bloodstream that fight off infection and disease.

____ ____ 16. Sticky sweet foods increase the risk of tooth decay.

____ ____ 17. Heavy drinking can cause nervous system disorders.

____ ____ 18. About 35 percent of the people in the United States have high blood pressure.

____ ____ 19. Vitamin C provides energy for the body.

____ ____ 20. Vitamin A is important for blood clotting.

SCORING KEY

NUTRITION AND HEALTH

Item	Answer
1	T
2	F
3	T
4	F
5	T
6	T
7	T
8	F
9	T
10	F
11	F
12	F
13	T
14	T
15	F
16	T
17	T
18	F
19	F
20	F

FOOD AND HEALTH

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Health Consequences of Food and Diet

TARGET POPULATION: Elementary school children

GENERAL DESCRIPTION:

Children are presented with statements about health consequences related to nutrition. Children indicate whether each statement is true or false.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 278-285.

READEX FICHE

FOOD AND HEALTH

This test has 15 sentences. If the sentence is correct, put a check under the word TRUE. If the sentence is incorrect, put a check under the word FALSE.

TRUE FALSE

____ ____ 1. Protein is one of the nutrients in some foods.

____ ____ 2. Carbohydrate helps the teeth to be strong.

____ ____ 3. Vitamin A helps the eyes to be healthy.

____ ____ 4. Vitamin C helps the gums to be healthy.

____ ____ 5. Iron helps build strong bones.

____ ____ 6. People with high blood pressure will increase their blood pressure by eating less salt.

____ ____ 7. Weighing too much is a very common health problem in the United States.

____ ____ 8. People who eat more than they need may be more likely to get sick.

____ ____ 9. Calcium helps build strong bones.

____ ____ 10. The chance of getting cavities is less if sweet foods are eaten between meals.

____ ____ 11. Weighing too much can help a person live longer.

____ ____ 12. People with high blood pressure are more likely to get certain diseases.

____ ____ 13. Protein helps other nutrients get into the blood.

____ ____ 14. The B vitamins help digestion.

____ ____ 15. People will grow correctly whether or not they eat a healthy diet.

SCORING KEY
FOOD AND HEALTH

Item	Answer
1	T
2	F
3	T
4	T
5	F
6	F
7	T
8	T
9	T
10	F
11	F
12	T
13	F
14	T
15	F

WEIGHT MANAGEMENT

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Weight Management

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Individuals are presented with statements about aspects of weight management. Individuals indicate whether each statement is true or false.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 286-295.

WEIGHT MANAGEMENT

This test consists of 20 statements about weight management. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.

TRUE FALSE

____ ____ 1. An individual's percentage of total body fat decreases gradually with age.

____ ____ 2. Excess body fat can contribute to the development of cardiovascular disease.

____ ____ 3. Proteins supply calories.

____ ____ 4. The goal of a reducing diet is to lower body weight by decreasing the amount of body fat.

____ ____ 5. Pregnant women should diet to lose weight.

____ ____ 6. Weight loss will be the greatest during the first few weeks of a diet.

____ ____ 7. A reducing diet should contain all the nutrients required by the RDA.

____ ____ 8. Steaming food increases their calorie content.

____ ____ 9. Flavored yogurt has a high sugar content.

____ ____ 10. A healthy level of body fat for men is higher than it is for women.

TRUE FALSE

____ ____ 11. A weight loss diet that permanently changes eating habits will have the least success.

____ ____ 12. Calorie intake must drop below 800 calories a day before there is a risk of a diet lacking essential nutrients.

____ ____ 13. Overweight individuals often are malnourished because they eat many low nutrient, high calorie foods.

____ ____ 14. Body weight is determined by activity level and food consumption.

____ ____ 15. Thinking requires a great deal of energy.

____ ____ 16. Increasing the number of calories used through exercise and decreasing the number of calories consumed will generally result in weight loss.

____ ____ 17. A person's age has no effect in determining that individual's calorie requirements.

____ ____ 18. The body stores excess energy in the form of body fat.

____ ____ 19. A negative energy balance is achieved by using fewer calories than are consumed.

____ ____ 20. When there is a balance between the total number of calories eaten and used, the intake of needed nutrients will also be adequate.

SCORING KEY
WEIGHT MANAGEMENT

Item	Answer
1	F
2	T
3	T
4	T
5	F
6	T
7	T
8	F
9	T
10	F
11	F
12	F
13	T
14	T
15	F
16	T
17	F
18	T
19	F
20	F

MAINTAINING AN APPROPRIATE DIET PLAN

TYPE OF MEASURE: Skill

OUTCOME ASSESSED: Diet Plan Analysis

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Individuals are presented with a fictitious person's name and age, along with a record of a typical day's food intake for the person described. Individuals are to select from among four possible action plans the one that is most appropriate for the individual to follow in order to eat at least the recommended minimum number of servings from each food group. Each action plan indicates the additional servings from the four food groups that the person should add to his or her daily diet in order to reach the recommended daily levels.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 296-300.

MAINTAINING AN APPROPRIATE DIET PLAN

This test presents descriptions of individuals who want to be sure that they eat the recommended minimum number of servings from the four food groups. Each description includes a typical day's food record for the individual.

Four possible action plans are presented below the daily food record. Each plan indicates the additional servings the individual can add to his or her daily diet. A column is also provided for you to use as a work space, if you wish, to keep count of the number of servings from each food group that the individual has already eaten.

Read about each individual. Then put a check (√) in the box under the plan that helps the individual eat the recommended minimum number of servings from each food group. If the individual already eats at least the minimum number of servings needed from each food group, check Plan D.

1. Name: Charles Brown
Age: 34

Daily Food Record

1 glass orange juice
2 doughnuts
2 cups coffee with cream and sugar
6 ounces fish
1 cup brown rice
1 bowl spinach salad
2 scoops ice cream
1 glass white wine
1/2 cup peanuts
1/2 cantaloupe
12 ounces steak
1 cup cooked peas
1 baked potato
1 slice French bread with butter
1 piece blueberry pie
1 cup coffee with cream and sugar

Put a check in the box under the action plan that Charles should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		-	Add 1 serving	Add 1 serving	-
Bread and cereal group		Add 1 serving	-	-	-
Milk and milk products group		Add 1 serving	-	Add 1 serving	-
Meat and meat alternates group		-	Add 1 serving	-	-

(Check answer here) ☐ ☐ ☐ ☐

2. Name: Donna Marshall
Age: 46

Daily Food Record

1/2 grapefruit
1 bowl bran cereal
1 glass milk
1 cup raw carrots and celery
1 1/2 cups cottage cheese
1 slice whole grain bread
1 cup tea
1 bowl lettuce salad
3 ounces white fish
1/2 cup steamed asparagus
1/2 cup broiled tomatoes
1 glass white wine
1 cup melon and berries

Put a check in the box under the action plan that Donna should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		Add 1 serving	-	-	-
Bread and cereal group		Add 3 servings	-	Add 2 servings	-
Milk and milk products group		-	Add 2 servings	-	-
Meat and meat alternates group		-	Add 2 servings	Add 1 serving	-

(Check answer here) ☐ ☐ ☐ ☐

3. Name: Felice Tucker
Age: 41

Daily Food Record

1 glass grapefruit juice
1 slice rye bread with jelly
1 glass milk
3 ounces chicken
1/2 cup noodles with butter
1 bowl lettuce and tomato salad
1 glass iced tea
1 cup flavored gelatin with fruit
1 can beer
1 bag potato chips
6 ounces roast lamb
1/2 cup rice
1 cup cooked corn and peas
1 piece apple pie
1 1/3 ounces cheddar cheese
1 cup coffee with cream

Put a check in the box under the action plan that Felice should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		-	-	Add 1 serving	-
Bread and cereal group		-	Add 1 serving	-	-
Milk and milk products group		Add 1 serving	-	-	-
Meat and meat alternates group		-	-	Add 1 serving	-

(Check answer here) ☐ ☐ ☐ ☐

4. Name: Ray Carlton
Age: 53

Daily Food Record

1 banana
1 bowl oatmeal with cream and sugar
2 sweet rolls
1 cup coffee with cream and sugar
1 bowl cabbage salad
1 fish sandwich (3 ounces fish, roll, dresssing)
1 bag potato chips
1 piece chocolate pie
1 glass milk
8 ounces roast beef
1/2 cup beets
2 biscuits with margarine
1 cup macaroni with cream sauce
4 sugar cookies
1 cup coffee with cream and sugar
1 can beer
1 cup pretzels

Put a check in the box under the action plan that Ray should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		Add 2 servings	Add 1 serving	-	-
Bread and cereal group		-	-	Add 1 serving	-
Milk and milk products group		-	Add 1 serving	-	-
Meat and meat alternates group		-	-	-	-

(Check answer here) ☐ ☐ ☐ ☐

5. Name: Greg Sparks
Age: 17

Daily Food Record

1 orange
1 bowl corn flakes
2 slices wheat toast with butter
1 glass milk
1 doughnut
2 peanut butter and jelly sandwiches (4 slices bread, 4 tablespoons peanut butter, 4 tablespoons jelly)
1 apple
1 glass milk
4 chocolate chip cookies
1/2 cup mixed nuts
2 beef tacos (2 tortillas, 6 ounces meat, 1/2 cup lettuce)
1 cup pinto beans
1 cup rice
1 glass milk
1 piece berry pie

Put a check in the box under the action plan that Greg should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		-	-	Add 1 serving	-
Bread and cereal group		Add 1 serving	-	-	-
Milk and milk products group		-	Add 2 servings	Add 1 serving	-
Meat and meat alternates group		Add 1 serving	Add 1 serving	-	-

(Check answer here) ☐ ☐ ☐ ☐

6. Name: Carol Hilburn
Age: 26, nursing mother

Daily Food Record

1 glass tomato juice
2 eggs
1 English muffin
1 glass milk
3 ounces ham
2 slices swiss cheese
2 slices rye bread with mustard
1 cup shredded cabbage with dressing
1 peach
1 glass milk
1 cup yogurt
6 ounces corned beef
1 artichoke with butter
1 baked potato with sour cream
1 corn muffin
1 piece pumpkin pie
1 glass milk

Put a check in the box under the action plan that Carol should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		Add 2 servings	-	Add 1 serving	-
Bread and cereal group		-	Add 1 serving	-	-
Milk and milk products group		Add 1 serving	Add 2 servings	Add 1 serving	-
Meat and meat alternates group		-	-	Add 1 serving	-
(Check answer here)		☐	☐	☐	☐

7.

Name: Suzanne Wells
Age: 18

Daily Food Record

1 glass grapefruit juice
2 eggs
2 slices bacon
1 cup tea with lemon
1/2 grapefruit
6 ounces turkey
1 bowl lettuce and tomato salad with vinegar
1 cup tea with lemon
1/2 grapefruit
6 ounces white fish
1 cup steamed spinach
1 cup steamed broccoli
1 bowl lettuce salad with vinegar
1 glass milk

Put a check in the box under the action plan that Suzanne should follow in order to eat at least the minimum number of servings from each food group:

		Possible Action Plans			
Food Group	Servings (Work space)	Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		-	-	Add 1 serving	-
Bread and cereal group		Add 4 servings	Add 3 servings	Add 2 servings	-
Milk and milk products group		Add 3 servings	Add 1 servings	Add 2 servings	-
Meat and meat alternates group		-	Add 1 serving	-	-

(Check answer here) ☐ ☐ ☐ ☐

8. Name: David Hamilton
Age: 56

Daily Food Record

1/2 cantaloupe
1 egg
1 bagel
1 glass milk
3 ounces chicken
2 slices wheat bread
1 tomato
1/2 cup lettuce
1 apple
1 glass milk
6 ounces turkey
1/2 cup cooked carrots
1/2 cup rice
1 cup fresh pineapple
1 cup coffee

Put a check in the box under the action plan that David should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		Add 2 servings	-	Add 1 serving	-
Bread and cereal group		-	Add 2 servings	Add 1 serving	-
Milk and milk products group		Add 1 serving	Add 1 serving	-	-
Meat and meat alternates group		-	-	Add 1 serving	-

(Check answer here) ☐ ☐ ☐ ☐

9. Name: Fran Thomas
Age: 24

Daily Food Record

1 glass tomato juice
3 slices bacon
2 eggs
1 cup tea
4 ounces roast beef
1 slice enriched white bread
1 tomato
1 carrot
1 1/3 ounces American cheese
1 cup coffee
6 ounces turkey
1/2 cup mashed potatoes
1/2 cup green beans
1 medium lettuce salad
1 cup coffee

Put a check in the box under the action plan that Fran should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		-	-	-	-
Bread and cereal group		Add 3 servings	Add 1 serving	Add 2 servings	-
Milk and milk products group		Add 1 serving	Add 2 servings	Add 3 servings	-
Meat and meat alternates group		-	Add 1 serving	-	-

(Check answer here) ☐ ☐ ☐ ☐

10. **Name:** Mark Summer
Age: 17

Daily Food Record

1 glass orange juice
2 eggs
1 serving grits with butter
1 cup hash brown potatoes
1 slice wheat toast with butter and jelly
1 glass milk
Tuna sandwich (2 slices bread, 3 ounces tuna, mayonnaise)
2 pieces watermelon
1 bag corn chips
1 milkshake (1 glass milk, 2 scoops ice cream)
2 pork chops
2 rolls with butter
1 baked potato with sour cream
2 chocolate brownies
2 glasses of milk

Put a check in the box under the action plan that Mark should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		Add 1 serving	Add 2 servings	-	-
Bread and cereal group		-	-	Add 1 serving	-
Milk and milk products group		Add 2 servings	Add 1 serving	-	-
Meat and meat alternates group		-	-	Add 2 groups	-

(Check answer here) ☐ ☐ ☐ ☐

11. Name: Bruce Fox
Age: 32

Daily Food Record

1 orange
1 egg
1 bowl cooked wheat cereal
1 slice whole grain toast with butter
1 glass milk
1 egg salad sandwich (2 eggs, 2 slices bread, 1 tablespoon mayonnaise)
1 tomato
1 banana
1 cup macaroni with 1 1/3 ounces cheese
2 whole wheat rolls with butter
2 cups vegetable casserole (corn, peas, peppers, carrots)
1 cup melon
1 apple
1 glass milk

Put a check in the box under the action plan that Bruce should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		-	-	-	-
Bread and cereal group		Add 1 serving	-	-	-
Milk and milk products group		-	Add 1 serving	-	-
Meat and meat alternates group		-	-	Add 1 serving	-

(Check answer here) ☐ ☐ ☐ ☐

12. Name: Mary Stern
Age: 18

Daily Food Record

1 glass grapefruit juice
1 bowl oatmeal
1 egg
1 glass milk
1 cheese sandwich (2 ounces cheese, 2 slices bread, margarine)
1 apple
1 bag potato chips
2 chocolate cookies
1 glass milk
1 ice cream cone (2 scoops of vanilla ice cream)
6 ounces pot roast
1 ear corn
1 1/2 cups boiled potatoes
1 cup flavored gelatin
1 glass milk
4 graham crackers

Put a check in the box under the action plan that Mary should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		Add 1 serving	Add 2 servings	Add 1 serving	-
Bread and cereal group		-	-	Add 1 serving	-
Milk and milk products group		Add 1 serving	Add 1 serving	-	-
Meat and meat alternates group		Add 2 servings	-	Add 1 serving	-

(Check answer here) ☐ ☐ ☐ ☐

13. Name: Jackie Crothers
Age: 27, pregnant

Daily Food Record

1/2 grapefruit
2 eggs
2 slices whole wheat toast with margarine
1 glass milk
1 cup fresh fruit salad
1 cup yogurt
6 ounces roast beef
1 cup eggplant-tomato casserole
1 bowl lettuce salad with dressing
2 blueberry muffins with margarine
1 cup flavored gelatin with whipped cream
1 cup tea

Put a check in the box under the action plan that Jackie should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		-	Add 1 serving	-	-
Bread and cereal group		Add 1 serving	Add 1 serving	-	-
Milk and milk products group		Add 1 serving	-	Add 2 servings	-
Meat and meat alternates group		-	-	-	-

(Check answer here) ☐ ☐ ☐ ☐

14. Name: Paul Ortega
Age: 32

Daily Food Record

1/2 papaya
1 bowl rice cereal
1 glass milk
1 cup coffee
2 hot dogs
2 buns
1 can beer
1 candy bar
10 ounces steak
1 baked potato with butter
1/2 cup creamed peas
2 pieces corn bread
1 piece applesauce cake
1 cup coffee
1 can beer
3/4 cup peanuts

Put a check in the box under the action plan that Paul should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		Add 1 serving	-	-	-
Bread and cereal group		-	-	Add 1 serving	-
Milk and milk products group		Add 1 serving	-	Add 1 serving	-
Meat and meat alternates group		-	Add 1 serving	-	-

(Check answer here) ☐ ☐ ☐ ☐

15. Name: Bonnie Scott
Age: 37

Daily Food Record

1 orange
1 slice whole wheat toast
1 egg
1 glass milk
3 ounces tuna
1 slice whole wheat bread
1/2 cup berries
1 can diet soda
1 bowl salad with lettuce, tomatoes, cabbage, carrots
3 ounces chicken
1 cup steamed string beans
1 cup diet gelatin
1 cup coffee

Put a check in the box under the action plan that Bonnie should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		Add 1 serving	-	-	-
Bread and cereal group		-	Add 2 servings	Add 1 serving	-
Milk and milk products group		Add 3 servings	Add 1 serving	Add 2 servings	-
Meat and meat alternates group		-	-	-	-
(Check answer here)		☐	☐	☐	☐

SCORING KEY

MAINTAINING AN APPROPRIATE DIET PLAN

Item	Answer
1	A
2	C
3	B
4	B
5	C
6	D
7	A
8	D
9	A
10	D
11	C
12	D
13	C
14	A
15	B

COMMUNICATING ABOUT DIETING

TYPE OF MEASURE: Skill

OUTCOME ASSESSED: Interpersonal Relationships: Effective Communication Techniques

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Individuals are presented with descriptions of fictitious persons who want to express their feelings about being on a diet or wish to request assistance with their efforts to implement a diet plan. Individuals are asked to select from among three statements the one that most clearly and directly communicates the fictitious person's message or to indicate that none of the suggested statements is appropriate.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 301-304.

COMMUNICATING ABOUT DIETING

This test presents descriptions of people who want to communicate their feelings about dieting. They each have a message that they want to communicate to someone else.

Read each item. Then circle the letter of the choice that expresses the individual's message clearly and directly. If there is no clear and direct response given, circle choice D, "None of the above."

1. Michael wants to communicate to his friend that he gets nervous and has a hard time sticking to his diet when he's working on important projects at work. The most clear and direct way for Michael to say this is:

   A. "I get anxious when I have to complete important work projects."

   B. "I get nervous and have trouble staying on my diet when I'm working on important projects at work."

   C. "I can't possibly complete important projects at work without going off my diet."

   D. None of the above.

2. Martha feels depressed when she thinks about going on a diet and giving up the pleasure she gets from eating ice cream. The most clear and direct way for Martha to say this is:

   A. "You know how I feel about giving up ice cream."

   B. "I'm sure everyone feels sad when they think about giving up ice cream."

   C. "I get depressed when I realize I'll have to go without the pleasure of eating ice cream."

   D. None of the above.

3. Reggie wants to tell his wife that he feels good because he ate a salad while all his friends were eating pizza. The most clear and direct way for Reggie to say this is:

   A. "I feel good because I ate a salad while the other guys were eating pizza."

   B. "I didn't eat any pizza tonight."

   C. "You can imagine how good I feel after going all night without eating pizza."

   D. None of the above.

4. Joyce wants to tell her husband that she feels happy being able to turn down a dessert that was offered to her after lunch. The most clear and direct way for Joyce to say this is:

   A. "Now I'll never again have to worry about going off my diet when I'm in a tight spot."

   B. "You know what it means to me to have turned down dessert after lunch."

   C. "They offered me dessert after lunch and I turned it down."

   D. None of the above.

5. Mark wants to tell his friend that he feels deprived when he has to order fish rather than steak. The most clear and direct way for Mark to say this is:

   A. "Everyone knows that a meal isn't really good unless you can eat what you want to."

   B. "I feel like I'm missing something special when I have fish instead of steak."

   C. "If I can't have steak, I'll never enjoy my meals."

   D. None of the above.

6. Janice wants to ask her roommate not to snack when they watch television together in the evenings. Seeing her roommate snack makes it hard for Janice to stick to her diet. The most clear and direct way for Janice to say this is:

   A. "It's not very considerate of you to snack in front of me when you know I'm on a diet."

   B. "You can imagine how difficult it is for me not to snack if you snack while we're watching television."

   C. "I'm uncomfortable when I watch television with you."

   D. None of the above.

7. Lucy sometimes asks Jenny, her co-worker, for a piece of candy when she is hungry. In order to lose weight, she now wants to ask Jenny to refuse to give her candy even if she should ask for some. The most clear and direct way for Lucy to say this is:

   A. "Please don't give me any candy because you know how it is when you're trying to lose weight."

   B. "When people try to lose weight, it helps if their friends refuse to give them candy."

   C. "I am trying to lose weight, so please help by not giving me candy even if I ask for it."

   D. None of the above.

8. Gerald wants to ask his wife to help him follow his diet by not salting the food when she cooks. The most clear and direct way for Gerald to say this is:

   A. "I need to eat less salt, so please don't salt the food when you cook."

   B. "Please help me eat less salt."

   C. "If you really care about my health, you'll help me by not salting the food."

   D. None of the above.

9. Susan wants to ask her mother to help her diet by serving a low-calorie dessert. The most clear and direct way for Susan to say this is:

   A. "I need your help because I'm on a diet."

   B. "People can't be expected to lose weight when others eat high calorie desserts in front of them."

   C. "Yo're not being very sensitive to my needs if you continue to make high calorie desserts."

   D. None of the above.

10. Sara is pleased because she has lost weight and she looks and feels better. The most clear and direct way for Sara to say this is:

    A. "I feel so good that I'm going to buy some new clothes."

    B. "I'm happy that I've lost weight because I look and feel better."

    C. "You can imagine how good I feel about how I look."

    D. None of the above.

11. David is discouraged because he hasn't lost weight durin the past two weeks even though he has followed his diet carefully. The most clear and direct way for David to say this is:

    A. "I don't like this diet anymore."

    B. "People get discouraged when they stick to their diets but don't lose weight."

    C. "I'm upset because I've been unable to lose weight even though I'm staying on my diet."

    D. None of the above.

12. Gary wants to tell his wife that it is hard for him to follow a low-fat diet because she uses a good deal of butter when she cooks. The most clear and direct way for Gary to say this is:

    A. "I have trouble following a low-fat diet because you use a lot of butter when you cook."

    B. "It's hard to follow a low-fat diet if your wife is a good cook."

    C. "It would be helpful if you could cook differently while I'm on my diet."

    D. None of the above.

13. Marcia is pleasantly surprised to find that her diet is easier to follow now that she has learned to cook foods that she is allowed to eat. The most clear and direct way for Marcia to say this is:

    A. "Everyone can follow a diet properly if they learn how to cook the right foods."

    B. "You can see how much easier my diet is for me now that I know how to prepare food properly."

    C. "I just needed to learn new ways to cook."

    D. None of the above.

14. Bill wants to tell his friend that he is happy because he has been able to lose 20 pounds on his new diet. The most clear and direct way for Bill to say this is:

    A. "I've lost 20 pounds on my new diet."

    B. I'm pleased that I've been able to lose 20 pounds on my new diet."

    C. "I'm never going to gain weight again."

    D. None of the above.

15. Rita has a difficult time at parties because she is on a diet and cannot eat as much as she would like to. The most clear and direct way for Rita to say this is:

    A. "You know how hard it is for me to go to parties and not eat too much."

    B. "I simply cannot go to parties while I'm on this diet."

    C. "It's difficult for me to go to parties because I'm on a diet and can't eat much."

    D. None of the above.

SCORING KEY

COMMUNICATING ABOUT DIETING

Item	Answer	Item	Answer
1	B	9	D
2	C	10	B
3	A	11	C
4	D	12	A
5	B	13	D
6	D	14	B
7	C	15	C
8	A		

INCORRECT ANSWER CHOICE ANALYSES

The incorrect answer choices for each item are listed below using the following method of annotation:

Overgeneralized - a response that extends a single experience to all experiences or always associates a particular behavior with certain circumstances.

Crystal Ball - a response in which the assumption is made that the receiver already knows the sender's feelings or the content of the message.

Judgment - a response that blames or criticizes.

Incomplete - a response that does not provide all the information needed to send a complete message.

None of the above - a response that indicates that there is no correct answer when there is a correct answer.

	Overgeneralized	Crystal Ball	Judgment	Incomplete	None of the above
1	C			A	D
2	B	A			D
3		C		B	D
4	A	B		C	
5	A, C				D
6		B	A	C	
7	B	A			D
8			C	B	D
9	B		C	A	
10		C		A	D
11	B			A	D
12	B			C	D
13	A	B		C	
14	C			A	D
15	B	A			D

TALKING ABOUT DIETING

TYPE OF MEASURE: Skill

OUTCOME ASSESSED: Interpersonal Relationships: Effective Communication Techniques

TARGET POPULATION: Elementary school children

GENERAL DESCRIPTION:

Children are presented with brief descriptions of fictitious persons who want to express their feelings about being on a diet or wish to request assistance with their efforts to implement a diet plan. Children are asked to select from among three statements the one that most clearly and directly communicates the fictitious person's message.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 305-307.

TALKING ABOUT DIETING

This test is about young people who want to tell how they feel about dieting. Read about each person. Then choose the most clear and direct way of saying what the person wants to tell. Circle the letter of this choice.

1. Michael gets bored and has a hard time staying on his diet when he is working on his homework. The most clear and direct way for Michael to say this is:

   A. "I really get bored when I do my homework."

   B. "When I'm doing my homework and get bored, I have trouble staying on my diet."

   C. "I'll never be able to do my homework without going off my diet."

2. Martha is unhappy when she thinks about going on a diet and giving up ice cream and cake. The most clear and direct way for Martha to say this is:

   A. "You know how I feel about giving up ice cream and cake."

   B. "If you think that it's easy to give up ice cream and cake, you don't know much about good food."

   C. "I feel sad when I think about going without ice cream and cake."

3. Ronald wants to tell his mother that he feels good because he ate a salad while all his friends were eating pizza. The most clear and direct way for Ronald to say this is:

   A. "I feel good about myself because I only ate a salad while all the other guys were eating pizza."

   B. "I didn't eat any pizza tonight."

   C. "You can imagine how I feel about not eating any pizza."

4. Joyce feels happy about turning down a sweet roll that was offered to her by a friend. The most clear and direct way for Joyce to say this is:

   A. "Now I'm sure that I won't go off of my diet."

   B. "You know how hard it was to turn down that sweet roll my friend offered me."

   C. "My friend offered me a sweet roll and I'm happy to say that I didn't take it."

5. Janice wants to ask her sister not to eat cookies when they watch television together. Seeing her sister eat cookies makes it hard for Janice to stick to her diet. The most clear and direct way for Janice to say this is:

   A. "It's not very nice of you to eat cookies in front of me when you know I'm on a diet."

   B. "Please don't eat cookies when we're watching television because seeing you eat makes it hard for me to diet."

   C. "It's very hard for me to watch television with you."

6. Lucy sometimes asks her friend Jenny for candy. Now Lucy needs to lose weight and she wants to ask Jenny not give her any candy, even if she asks for some. The most clear and direct way for Lucy to say this is:

   A. "I'm trying to lose weight so please don't give me any candy even if I ask for some."

   B. "Please don't give me any candy because you know how it is when you're trying to lose weight."

   C. "The only way I can lose weight is if you are willing to help me."

7. David is upset because he hasn't lost any weight during the past two weeks, even though he followed his diet carefully. The most clear and direct way for David to say this is:

   A. "I'm very upset with my diet."

B. "I'm unhappy because I haven't lost weight even though I'm following my diet."

C. "People feel bad when they stay on their diets but don't lose weight."

8. Maria has a difficult time at parties because she is on a diet and cannot eat as much as she would like. The most clear and direct way for Maria to say this is:

A. "The only way to have a good time at parties is to forget about dieting."

B. "You must know how hard it is for me to be at parties and not eat too much."

C. "Because I'm on a diet and can't eat much, I find being at parties very difficult."

9. Jim wants to ask his family to help him follow his diet by having fruit for dessert instead of pie. The most clear and direct way for Jim to say this is:

A. "Could we please have fruit for dessert instead of pie?"

B. "People can't follow their diets when other people eat pie in front of them."

C. "I'm on a diet and it would help me if we had fruit instead of pie for dessert."

10. Al is happy because he has lost several pounds on his diet. The most clear and direct way for Al to say this is:

A. "I'm pleased because I've lost several pounds by following my diet."

B. "Now that I have lost the weight, I'll never gain it back again."

C. "I've lost several pounds."

SCORING KEY

TALKING ABOUT DIETING

Item	Answer
1	B
2	C
3	A
4	C
5	B
6	A
7	B
8	C
9	C
10	A

INCORRECT ANSWER CHOICE ANALYSES

The incorrect answer choices for each item are listed below using the following method of annotation.

Overgeneralized - a response that extends a single experience to all experiences or always associates a particular behavior with certain circumstances.

Crystal Ball - a response in which the assumption is made that the receiver already knows the sender's feelings or the contents of the message.

Judgment - a response that blames or criticizes.

Incomplete - a response that does not provide all the information needed to send a complete message.

	Overgeneralized Message	Crystal Ball Message	Judgment Message	Incomplete Message
1	C			A
2		A	B	
3		C		B
4	A	B		
5			A	C
6	C	B		
7	C			A
8	A	B		
9	B			A
10	B			C

RESPONDING TO OTHERS ABOUT DIETING

TYPE OF MEASURE: Skill

OUTCOME ASSESSED: Interpersonal Relationships: Effective Response Techniques

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Individuals are presented with statements by fictitious persons. These statements either express a person's feelings about being on a diet or present a request for assistance with efforts to implement a diet plan. Individuals select from among four statements the response that best communicates acceptance and understanding of the fictitious person's situation.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 308-310.

RESPONDING TO OTHERS ABOUT DIETING

This test presents statements by individuals who want to communicate their feelings about dieting. Read each statement. Then circle the letter of the response that best communicates acceptance and understanding of the message.

1. Dan: "I'm trying to stay on my weight loss diet, but I feel deprived when I can't eat the high calorie foods I enjoy."

The response that best communicates acceptance and understanding of Dan's situation is:

A. "Enjoy the foods that are on your diet instead of thinking about the foods that aren't."

B. "You'll be sorry if you don't stay on your diet."

C. "You feel like you're missing something special when you can't eat your favorite high calorie foods."

D. "You may feel deprived because your weight loss diet is too strict."

2. Doris: "I'm pleasantly surprised to find I can still enjoy meals even if I'm dieting."

The response that best communicates acceptance and understanding of Doris' situation is:

A. "It was foolish of you to assume that your enjoyment of food depended on whether or not you were on a diet."

B. "You're pleased to find out that being on a diet hasn't changed your enjoyment of your meals."

C. "You must feel better about yourself now that you're dieting."

D. "The next thing you should do is to start to exercise daily."

3. Janet: "I get nervous and feel as if I need to eat something when I'm at a party and I don't know anyone."

   The response that best communicates acceptance and understanding of Janet's situation is:

   A. "You get nervous at social gatherings and feel like you need to eat something."

   B. "You use eating as a crutch to hide your nervousness."

   C. "Try to find someone to talk to instead of eating."

   D. "You probably eat every time you get nervous."

4. Paula: "I would like to eat dinner at home tonight because I have trouble controlling my eating at a restaurant."

   The response that best communicates acceptance and understanding of Paula's situation is:

   A. "If you don't learn to control your eating, you may have health problems."

   B. "Because you find it difficult to control your eating at a restaurant, you'd rather stay home tonight."

   C. "There's no reason you should have problems controlling your appetite, even if we go out."

   D. "You must learn to control your eating."

5. Robert: "Whenever I see candy lying around the apartment, I'm tempted to go off my diet."

   The response that best communicates acceptance and understanding of Robert's situation is:

   A. "You feel like going off your diet when you see candy."

   B. "When you see candy lying around, exercise your will power and go into a different room."

C. "Think about how fat you'll get if you let yourself eat candy."

D. "You can't be serious about losing weight if you're tempted to eat candy every time you see it."

6. Alan: "You could help me by making a low calorie dessert for the party tonight."

The response that best communicates acceptance and understanding of Alan's situation is:

A. "You don't need my help to stick to your diet."

B. "Stay away from all the other high calorie foods that will be at the party."

C. "You'll be sorry if you expect me to keep you on your diet."

D. "You want me to help you by making a low calorie dessert for the party."

7. Gwen: "When you eat pastries for breakfast in the morning, the smell makes me want some too."

The response that best communicates acceptance and understanding of Gwen's situation is:

A. "Think of how sorry you'll be if you eat any pastries."

B. "Just tell yourself that they don't taste as good as they smell."

C. "You feel as if you would like a pastry when you smell mine."

D. "There's no reason for you to have a pastry just because I'm having one."

8. Joe: "I'm happy to say that I've been able to lose weight and keep it off by following my diet."

The response that best communicates acceptance and understanding of Joe's situation is:

A. "You'd better not go off your diet or you'll gain back the weight you've lost."

B. "There's no reason to follow your diet as closely now that you've lost the extra weight."

C. "You're happy because you've lost weight and you haven't gained it back."

D. "You've probably been able to keep the weight off because you feel so good about yourself now."

9. Elizabeth: "I'm depressed because my friend has lost weight and I haven't, even though we're both dieting."

The response that best communicates acceptance and understanding of Elizabeth's situation is:

A. "Some people just have an easier time losing weight than other people."

B. "You're depressed because you haven't lost weight and your friend has."

C. "If you give up on your diet now, you'll never lose weight."

D. "Just stick to your diet and be patient."

10. Harold: "I'm confused by my new diet because I have trouble remembering which foods belong to each food group."

The response that best communicates acceptance and understanding of Harold's situation is:

A. "It's not that hard to learn the food groups."

B. "You probably can't remember your diet because you're looking for reasons to go off it."

C. "Just keep trying and you'll soon find it easy to remember which foods belong in each food group."

D. "You're having a difficult time remembering which foods belong in each food group."

11. Michelle: "I'm upset because I went on vacation and was not able to follow my diet."

The response that best communicates acceptance and understanding of Michelle's situation is:

A. "Try exercising now to help lose the extra weight you put on."

B. "You're upset because you weren't able to follow your diet while you were on vacation."

C. "It was foolish of you not to follow your diet while you were on vacation."

D. "If you aren't more careful about following your diet, you'll never lose the weight you want to."

12. Robert: "You could really help me follow my low-salt diet if you would cook without salt."

The response that best communicates acceptance and understanding of Robert's situation is:

A. "You'd like me to cook without salt to help you follow your diet."

B. "You should also avoid foods with salt outside of the house."

C. "By asking me for help, you're not accepting responsibility for what you eat."

D. "You don't need my help to stay on your diet."

13. Linda: "I'm fed up with my diet and think I'll just give it up."

The response that best communicates acceptance and understanding of Linda's situation is:

A. "You're giving up too easily."

B. "Take some time to think it over before you give up your diet."

C. "If you give up your diet now, you'll be sorry later."

D. "You're discouraged with your diet and you feel like giving up."

14. Richard: "I have a tough time not snacking on peanuts and potato chips while watching television."

The response that best communicates acceptance and understanding of Richard's situation is:

A. "Try not to keep peanuts or potato chips at home."

B. "You find it difficult not to eat peanuts and potato chips when you watch television."

C. "You have probably associated eating peanuts and potato chips with watching television."

D. "You're going to gain weight if you continue to snack while you watch television."

15. Chris: "I have a difficult time resisting sweets when my friends offer them to me."

The response that best communicates acceptance and understanding of Chris' situation is:

A. "Just tell yourself you don't want any sweets."

B. "Think about how bad sweets are for you."

C. "It is hard for you not to accept sweets when your friends offer you some."

D. "You have a tough time resisting sweets because you have a sweet tooth."

SCORING KEY

RESPONDING TO OTHERS ABOUT DIETING

Item	Answer	Item	Answer
1	C	10	D
2	B	11	B
3	A	12	A
4	B	13	D
5	A	14	B
6	D	15	C
7	C		
8	C		
9	B		

INCORRECT ANSWER CHOICE ANALYSES

The incorrect answer choices for each item are listed below using the following method of annotation:

Directing - a response that tells or suggest to the message sender what to do

Warning - a response that warns the message sender what might happen

Criticizing/Disagreeing - a response that criticizes or disagrees with the message sender

Diagnosing - a response that suggests an explanation for the message sender's statement

	Directing	Warning	Criticizing/ Disagreeing	Diagnosing
1	A	B		D
2	D		A	C
3	C			B, D
4	D	A	C	
5	B	C	D	
6	B	C	A	
7	B	A	D	
8		A	B	D
9	D	C		A
10	C		A	B
11	A	D	C	
12	B		D	C
13	B	C	A	
14	A	D		C
15	A	B		D

IDEAS ABOUT EATING

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Belief in Positive Effects of Maintaining a Healthy Diet

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

This inventory is a Likert scale in which respondents are asked to register their degree of agreement with a series of statements about the possible effects of a healthy diet on the growth and development of children and on one's health, appearance, physical fitness, sense of well-being, and ability to maintain a proper weight.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 311-313.

IDEAS ABOUT EATING

This survey is about how people might be affected by the foods they eat. Please respond to all the statements in the survey.

Read each statement. Decide the extent to which you agree with it. Circle the appropriate letter to the left of the statement. Use the following scale:

SA = Strongly Agree
A = Agree
U = Uncertain
D = Disagree
SD = Strongly Disagree

SA A U D SD 1. What people usually eat has no effect on how quickly they get well when they are sick.

SA A U D SD 2. People can control their weight by eating the proper kind and amount of food.

SA A U D SD 3. Eating the right foods is important for a child's growth and development.

SA A U D SD 4. It is not harmful to a person's health to go on a diet that eliminates some food groups.

SA A U D SD 5. What people eat does not affect their health.

SA A U D SD 6. People can be physically fit and energetic no matter what they eat.

SA A U D SD 7. People who usually eat a healthy diet will recover from illness more quickly than those who don't.

SA A U D SD 8. Failure to eat a healthy diet every day can affect a person's general health.

SA A U D SD 9. Children will grow up perfectly healthy no matter what they eat.

SA A U D SD 10. People who eat properly get sick less frequently than those who don't.

SA A U D SD 11. What people eat has little to do with how much they weigh.

SA A U D SD 12. People who eat a healthy diet are more physically fit and have more energy than people who don't eat properly.

SA A U D SD 13. Eating properly can improve the way the body looks.

SA A U D SD 14. Eating properly helps people feel better about themselves.

SA A U D SD 15. Failing to eat properly will not affect a person's overall health.

SA A U D SD 16. Diets that eliminate some food groups can harm a person's health.

SA A U D SD 17. People who maintain a healthy diet usually feel better than people who eat whatever they want.

SA A U D SD 18. People who look healthy, look that way no matter what they eat.

SA A U D SD 19. What one eats has little to do with how often one gets sick.

SA A U D SD 20. There is no relationship between how people feel about themselves and the foods they eat.

INSTRUCTIONS FOR SCORING

IDEAS ABOUT EATING

Point values are assigned to responses according to the following scoring key.

SCORING KEY

	SA	A	U	D	SD
1.	1	2	3	4	5
2.	5	4	3	2	1
3.	5	4	3	2	1
4.	1	2	3	4	5
5.	1	2	3	4	5
6.	1	2	3	4	5
7.	5	4	3	2	1
8.	5	4	3	2	1
9.	1	2	3	4	5
10.	5	4	3	2	1
11.	1	2	3	4	5
12.	5	4	3	2	1
13.	5	4	3	2	1
14.	5	4	3	2	1
15.	1	2	3	4	5
16.	5	4	3	2	1
17.	5	4	3	2	1
18.	1	2	3	4	5
19.	1	2	3	4	5
20.	1	2	3	4	5

This inventory can be scored by adding the point value of every response and dividing this sum by the number of responses. The maximum score attainable of 5 points indicates a strong belief in the positive effects of maintaining a healthy diet on the growth and development of children, and on one's health, appearance, physical fitness, sense of well-being, and ability to maintain a proper weight.

INSTRUCTIONS FOR SCORING (Cont.)

IDEAS ABOUT EATING

In addition to an overall score for this outcome, responses can be considered separately as follows:

Area	Items
Health	1,4,5,7,8,10,15,16,17,19
Growth and development of children	3, 9
Appearance	13, 18
Physical fitness	6, 12
Sense of well-being	14, 20
Weight control	2, 11

WHAT EATING DOES

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Belief in Positive Effects of Maintaining a Healthy Diet

TARGET POPULATION: Elementary school children

GENERAL DESCRIPTION:

This inventory is a Likert scale in which children are asked to register their degree of agreement with a series of statements about the possible effects of a healthy diet on a person's growth and development, health, appearance, physical fitness, sense of well-being, and ability to maintain a proper weight.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 314-316.

WHAT EATING DOES

The statements below are about how people might be affected by the foods they eat. Circle the word that shows how much you agree with each statement.

YES = I agree
MAYBE = I am not sure if I agree
NO = I do not agree

YES MAYBE NO 1. The foods people eat do not affect how fast they get well when they are sick.

YES MAYBE NO 2. People can control their weight by eating carefully.

YES MAYBE NO 3. To grow up strong and well, it is important to eat healthy foods.

YES MAYBE NO 4. Eating right won't make a person feel healthy.

YES MAYBE NO 5. People who exercise can be in good physical shape no matter what they eat.

YES MAYBE NO 6. People who eat right get well more quickly when they are sick than people who don't eat right.

YES MAYBE NO 7. Children grow up healthy no matter what they eat.

YES MAYBE NO 8. People who eat right get sick less often than people who don't eat right.

YES MAYBE NO 9. People can eat all they want and still not get fat.

YES MAYBE NO 10. People who eat right will be in better physical shape than people who don't eat right.

YES MAYBE NO 11. Eating healthy foods can help a person's appearance.

YES MAYBE NO 12. Eating right helps people feel good about themselves.

YES MAYBE NO 13. People who eat right feel better than people who don't eat right.

YES MAYBE NO 14. People who look good will look that way no matter what they eat.

YES MAYBE NO 15. What people eat has nothing to do with how often they get sick.

YES MAYBE NO 16. What people eat has nothing to do with how they feel about themselves.

INSTRUCTIONS FOR SCORING
WHAT EATING DOES

Point values are assigned to responses according to the following scoring key.

SCORING KEY

	YES	MAYBE	NO
1.	0	1	2
2.	2	1	0
3.	2	1	0
4.	0	1	2
5.	0	1	2
6.	2	1	0
7.	0	1	2
8.	2	1	0
9.	0	1	2
10.	2	1	0
11.	2	1	0
12.	2	1	0
13.	2	1	0
14.	0	1	2
15.	0	1	2
16.	0	1	2

This inventory can be scored by adding the point value of every response and dividing this by the number of responses. The maximum score attainable of 2 points indicates a strong belief in the positive effects of maintaining a well-balanced diet on growth and development, health, appearance, physical fitness, sense of well-being, and ability to maintain a proper weight.

In addition to an overall score for this outcome, responses can be considered separately as follows:

Area	Items
Health	1, 4, 6, 8, 13, 15
Growth and development of children	3, 7
Appearance	11, 14
Physical fitness	5, 10
Sense of well-being	12, 16
Weight control	2, 9

WOULD YOU TRY THESE?

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Acceptance of a Variety of Foods

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Individuals are presented with names of food items and are asked to indicate their level of willingness to try each item. Responses to this measure will be used to infer the willingness of individuals to consume a variety of foods.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 317-319.

WOULD YOU TRY THESE?

Various foods are listed below. For each one, circle the response that describes how willing you would be to try that food, if it were available to you.

YES = I would be very willing to try it.
MAYBE = I would consider trying it.
NO = I would rather not try it.

Circle only one response for each food.

YES MAYBE NO 1. Mango

YES MAYBE NO 2. Halibut

YES MAYBE NO 3. Bagel

YES MAYBE NO 4. Chicken chow mein

YES MAYBE NO 5. Yogurt

YES MAYBE NO 6. Soybeans

YES MAYBE NO 7. Manicotti

YES MAYBE NO 8. Goat's milk

YES MAYBE NO 9. Collard greens

YES MAYBE NO 10. Veal chop

YES MAYBE NO 11. String cheese

YES MAYBE NO 12. Eggplant casserole

YES MAYBE NO 13. Honeydew melon

YES MAYBE NO 14. Buttermilk

YES MAYBE NO 15. Oatmeal

Would You Try These?
Page 2

YES	MAYBE	NO	16. Carrot juice
YES	MAYBE	NO	17. Cottage cheese
YES	MAYBE	NO	18. Souffle
YES	MAYBE	NO	19. Liver
YES	MAYBE	NO	20. Bread sticks
YES	MAYBE	NO	21. Custard
YES	MAYBE	NO	22. Whole grain bread
YES	MAYBE	NO	23. Lentils
YES	MAYBE	NO	24. Blueberries
YES	MAYBE	NO	25. Ice milk
YES	MAYBE	NO	26. Fish stew
YES	MAYBE	NO	27. Brown rice
YES	MAYBE	NO	28. Tofu
YES	MAYBE	NO	29. Tortilla
YES	MAYBE	NO	30. Sprouts

INSTRUCTIONS FOR SCORING
WOULD YOU TRY THESE?

Point values are assigned to responses as follows:

YES = 2 points
MAYBE = 1 point
NO = 0 points

This inventory can be scored by adding the point values of every response and dividing this sum by the number of responses. The maximum score attainable of 2 points indicates a strong intention to try a wide variety of familiar and unfamiliar foods.

In addition to considering the overall score for this measure, separate scores can be computed for each food category, as follows:

Fruits and Vegetables: Items 1, 9, 13, 16, 24, 30

Meats and meat alternates: Items 2, 6, 10, 19, 23, 28

Milk and milk products: Items 5, 8, 11, 14, 17, 25

Breads and Cereals: Items 3, 15, 20, 22, 27, 29

Mixed Foods: Items 4, 7, 12, 18, 21, 26

WHAT WOULD YOU EAT?

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Acceptance of a Variety of Foods

TARGET POPULATION: Elementary school children

GENERAL DESCRIPTION:

Children are presented with names of food items and are asked to indicate their level of willingness to eat each one. Responses to this measure will be used to infer the willingness of children to consume a variety of foods.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 320-322.

WHAT WOULD YOU EAT?

Some different kinds of foods are listed below. For each one, circle the word that tells how willing you would be to eat that food, if someone offered you some.

YES = I would be very willing to eat it.
MAYBE = I might eat it.
NO = I would probably not eat it.

Circle only one word for each food.

YES	MAYBE	NO	1.	Tomato
YES	MAYBE	NO	2.	Liver
YES	MAYBE	NO	3.	Whole wheat toast
YES	MAYBE	NO	4.	Meat loaf
YES	MAYBE	NO	5.	String cheese
YES	MAYBE	NO	6.	Scrambled egg
YES	MAYBE	NO	7.	Custard
YES	MAYBE	NO	8.	Skim milk
YES	MAYBE	NO	9.	Broccoli
YES	MAYBE	NO	10.	Nuts
YES	MAYBE	NO	11.	Cottage cheese
YES	MAYBE	NO	12.	Chili
YES	MAYBE	NO	13.	Green beans
YES	MAYBE	NO	14.	Yogurt
YES	MAYBE	NO	15.	Brown rice
YES	MAYBE	NO	16.	Grapefruit juice
YES	MAYBE	NO	17.	Buttermilk
YES	MAYBE	NO	18.	Rice pudding
YES	MAYBE	NO	19.	Tofu
YES	MAYBE	NO	20.	Oatmeal
YES	MAYBE	NO	21.	Creamed spinach
YES	MAYBE	NO	22.	Corn bread
YES	MAYBE	NO	23.	Fish
YES	MAYBE	NO	24.	Honeydew melon
YES	MAYBE	NO	25.	Tortilla

INSTRUCTIONS FOR SCORING
WHAT WOULD YOU EAT?

Point values are assigned to responses as follows:

YES = 2 points
MAYBE = 1 point
NO = 0 points

This inventory can be scored by adding the point value of every response an individual makes and dividing this sum by the number of responses. The maximum score attainable of 2 points indicates a strong willingness to eat a wide variety of foods.

In addition to considering the overall score for this measure, separate scores can be computed for each food category, as follows:

Fruits and Vegetables: Items 1, 9, 13, 16, 24

Meats and Meat Alternates:: Items 2, 6, 10, 19, 23

Milk and Milk Products: Items 5, 8, 11, 14, 17

Breads and Cereals: Items 3, 15, 20, 22, 25

Mixed Foods: Items 4, 7, 12, 18, 21

EATING CORRECTLY

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Perceived Ability to Maintain a Healthy Diet

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

This measure is designed to assess individuals' perceived self-efficacy in being able to maintain a healthy diet. Individuals are presented with a series of situations which might promote or serve as barriers to maintaining a healthy diet and are asked to indicate if they can regularly maintain a healthy diet in each situation. If they indicate that they can maintain a healthy diet, they are asked to estimate, on a 10 to 100 numerical scale, how confident they are of their ability to maintain a healthy diet in that situation.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 323-325.

EATING CORRECTLY

This survey describes various situations. Read each statement. Circle YES or NO to show if you could maintain a healthy diet in that situation. A healthy diet is one which provides all necessary nutrients and limits calories to the amount needed. If you circle YES, then use the Confidence Scale to show how certain you are of your answer.

The following example shows how the Confidence Scale is used.

Physical Strength Examples	**CAN YOU DO THIS?**	**IF YES, HOW CERTAIN ARE YOU?**
You can lift a 50 pound weight.	**[✓ YES]/NO**	70
You can lift a 200 pound weight.	**YES/[✓ NO]**	____

Confidence Scale

10	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**
Very Uncertain				**Somewhat Certain**					**Very Certain**

		CAN YOU MAINTAIN A HEALTHY DIET?	IF YES, HOW CERTAIN ARE YOU?
1.	You eat out frequently.	YES/NO	____
2.	You must be in places where many fattening foods are available.	YES/NO	____
3.	You are very busy and do not have much time to cook.	YES/NO	____
4.	You are under great deal of pressure and are feeling nervous.	YES/NO	____
5.	You feel depressed.	YES/NO	____
6.	You are the only one in your house on a diet.	YES/NO	____
7.	You get especially hungry between meals.	YES/NO	____

		CAN YOU MAINTAIN A HEALTHY DIET?	IF YES, HOW CERTAIN ARE YOU?
8.	You are invited to eat at homes of friends who are very good cooks.	YES/NO	____
9.	A few of your friends are starting an unusual new diet and they want you to join them.	YES/NO	____
10.	Someone at home wants you to buy a new snack food they saw advertised on TV.	YES/NO	____
11.	Your friends usually eat lunch out and often invite you to join them.	YES/NO	____
12.	You have taken on many additional responsibilities and don't have time to plan or prepare meals.	YES/NO	____
13.	You notice that you have put on a few extra pounds and decide to diet.	YES/NO	____
14.	A close friend has just lost a lot of weight in a very short time.	YES/NO	____
15.	You have left-over food that others in your family do not like, but it is too costly to throw away.	YES/NO	____
16.	You find that you must lower your food budget.	YES/NO	____
17.	You are home alone and you are bored.	YES/NO	____
18.	You love foods that you know are fattening.	YES/NO	____
19.	You are on vacation.	YES/NO	____
20.	You are with people who snack all day.	YES/NO	____

INSTRUCTIONS FOR SCORING

EATING CORRECTLY

This inventory can be scored in several ways, two of which are described below. The first procedure relies on the YES/NO responses only, providing an easily obtained gross index of perceived ability to maintain a healthy diet. The second procedure combines the YES/NO responses and the confidence ratings in a single score, providing an index that reflects perceived ability to maintain a healthy diet across a variety of settings, coupled with the level of confidence manifested in that ability.

ANALYSIS OF YES/NO RESPONSES ONLY

Count the number of YES responses, disregarding the confidence ratings. The maximum score attainable of 20 YES responses represents a strong perceived ability to maintain a healthy diet in a wide variety of settings.

ANALYSIS COMBINING YES/NO RESPONSES AND CONFIDENCE RATINGS

Total all of the confidence ratings made in conjunction with a "YES" response and divide this sum by 20 (the total number of items in the inventory.) Confidence ratings made in conjunction with a "NO" response should be omitted from the analysis. The maximum score attainable of 100 represents a strong perceived ability to maintain a healthy diet across a wide variety of settings, along with a high level of confidence in that ability. It should be noted that this scoring procedure assumes a confidence rating of zero for those items to which respondents indicated "NO," meaning that they do not think they are able to maintain a healthy diet in the situation described.

EATING INTENTIONS

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Intention to Maintain a Healthy Diet

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

This measure is designed to assess the extent to which individuals intend to maintain a healthy diet. Individuals are asked whether they intend to maintain a healthy diet during specified future time periods. If individuals indicate that they intend to maintain a healthy diet for a particular time period, they are asked to estimate, on a 10 to 100 numerical scale, the strength of their intention.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 326-328.

EATING INTENTIONS

This survey asks about your intention to maintain a healthy diet. A healthy diet is one which provides all necessary nutrients and limits calories to the amount needed.

Read each question, then circle YES or NO. If you circle YES, then use the Confidence Scale to show how certain you are that you intend to maintain a healthy diet.

The following examples show how the Confidence Scale is used.

Physical Strength Examples	**CIRCLE YES OR NO**	**IF YES, HOW CERTAIN ARE YOU?**
Can you lift a 50 pound weight?	**[✓ YES]/NO**	70
Can you lift a 200 pound weight?	**YES/[✓ NO]**	

Confidence Scale

10	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**
Very Uncertain				**Somewhat Certain**					**Very Certain**

		CIRCLE YES OR NO	IF YES, HOW CERTA ARE YOU?
1.	Do you intend to maintain a healthy diet for the next 24 hours?	YES/NO	____
2.	Do you intend to maintain a healthy diet for the next week?	YES/NO	____
3.	Do you intend to maintain a healthy diet for the next month?	YES/NO	____
4.	Do you intend to maintain a healthy diet for the next year?	YES/NO	____
5.	Do you intend to maintain a healthy diet for the rest of your life?	YES/NO	____

INSTRUCTIONS FOR SCORING
EATING INTENTIONS

This inventory can be scored in several ways, two of which are described below. The first procedure relies on the YES/NO responses only, providing an easily obtained gross index of intention to maintain a healthy diet. The second procedure combines the YES/NO responses and the confidence ratings in a single score, providing an index that reflects intention to maintain a healthy diet for varied time periods, coupled with the level of confidence manifested in that intention.

ANALYSIS OF YES/NO RESPONSES ONLY

Count the number of YES responses, disregarding the confidence ratings. The maximum score attainable of 5 YES responses represents a strong intention to maintain a healthy diet for an extended period of time.

ANALYSIS COMBINING YES/NO RESPONSES AND CONFIDENCE RATINGS

Total all of the confidence ratings made in conjunction with a "YES" response and divide this sum by 5 (the total number of items in the inventory.) Confidence ratings made in conjunction with a "NO" response should be omitted from the analysis. The maximum score attainable of 100 represents a strong intention to maintain a healthy diet for an extended period of time, along with a high level of confidence in that ability. It should be noted that this scoring procedure assumes a confidence rating of zero for those items to which respondents indicated "NO," meaning that they do not think they are able to maintain a healthy diet for the time period specified.

MY BODY

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Respect for One's Body

TARGET POPULATION: Elementary school children

GENERAL DESCRIPTION:

This measure is designed to assess children's respect for their bodies. Children are asked to indicate whether they would engage in activities which are healthful and avoid activities which are harmful to the body.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 329-330.

MY BODY

Read each question. Then put a check (√) under the answer that best tells what you are willing to do to take care of your body.

In order to take care of your body, are you willing to ...	CERTAINLY YES	PROBABLY YES	MAYBE	PROBABLY NOT	CERTAINLY NOT
1. ... exercise several times each week?	___	___	___	___	___
2. ... never drink large amounts of alcohol?	___	___	___	___	___
3. ... do what your doctor tells you to do?	___	___	___	___	___
4. ... never smoke any cigarettes?	___	___	___	___	___
5. ... get immunizations against diseases?	___	___	___	___	___
6. ... get at least 8 hours of sleep every night?	___	___	___	___	___
7. ... see your doctor regularly?	___	___	___	___	___
8. ... not let yourself get too anxious?	___	___	___	___	___
9. ... be careful about what you eat?	___	___	___	___	___
10. ... never take drugs that are not necessary?	___	___	___	___	___

INSTRUCTIONS FOR SCORING

MY BODY

Point values are assigned to responses according to the following scoring key:

SCORING KEY

CERTAINLY YES = 5
PROBABLY YES = 4
MAYBE = 3
PROBABLY NOT = 2
CERTAINLY NOT = 1

This inventory can be scored by adding the point value of every response and dividing this sum by the number of responses. The maximum score attainable of 5 points indicates a strong respect for one's body, as evidenced by a willingness to engage in activities which are good for it and to avoid those which are not.

CHAPTER SIX

OTHER MEASURES

This chapter contains all of the previously developed measures that were located as a result of a comprehensive literature search and then identified as corresponding to one or more of the outcome statements listed in Chapter Four. The process by which existing measures were screened and selected is explained more completely in Chapter Two.

A descriptor page precedes each measure. This page indicates the type of measure (behavioral, knowledge, skill, or affective), the title of the outcome assessed, and the target population for the instrument. A general description is presented, providing an overview of the assessment strategy employed in the measure. The general description also provides information about the manner in which the instrument has previously been used. A technical information section summarizes any psychometric information that has been collected for the instrument. The measure's author(s) are listed. If there is any additional information available about a measure, reference citations are also given.

All of the measures in this chapter have been readied for possible photocopying. Directions to respondents and scoring instructions have been provided whenever they were available.

EATING HABITS QUESTIONNAIRE

TYPE OF MEASURE: Behavioral

OUTCOME ASSESSED: Maintenance of a Healthy Diet

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

The Eating Habits Questionnaire is designed for the nutritional assessment of maternity patients. It provides a way to obtain a gross evaluation of the diet, indicating major deficits in Vitamins A and C, protein, calcium and iron, as well as use of foods with calories but little other nutrient value. The questionnaire presents a selection of common foods in each of seven categories, namely, vegetables, fruits/juices, bread/cereals, milk/cheese, meats/dry beans, snack foods, and other foods/drink. Additional space is provided in each category for respondents to list other foods eaten. Individuals are asked to fill out the questionnaire every day for a week, writing the number of times each day that they consume any of the foods or drinks listed or any other items that they add. Individuals are also asked to answer two questions about their nutritional status and one question indicating whether they desire nutritional counseling.

The Eating Habits Questionnaire is scored by using a color coding system that identifies the major nutrient sources. A total score is computed for each food group and for each nutrient (protein, Vitamin A, Vitamin C, iron, and calcium). An accompanying listing of food groups and nutrients indicates the nutrient contribution of each item listed on the questionnaire.

AUTHORS: The American College of Obstetricians and Gynecologists
Washington, D.C.

The American Dietetic Association
Chicago, Illinois

ADDITIONAL INFORMATION:

The American College of Obstetricians and Gynecologists. Assessment of maternal nutrition. Chicago: Author, 1978.

EATING HABITS QUESTIONNAIRE

To learn how often you eat the foods listed on this page, we would like you to take this questionnaire home today, and fill it out at the end of each day for the next week. Since today is
begin with those columns and write the number of times today that you have eaten each of the listed foods or drinks.

If a food or drink that you eat is not on this page, find the proper food group and then write it in a blank space at the bottom of the list. For example, if you eat *okra* during the coming week, go to the "Vegetable" section and then write *okra* in the blank space under "Turnip". For more spaces, use the blank lines under the heading "Other Foods/Drinks".

Please answer the three questions at the bottom left of the page, and PLEASE BRING THIS SHEET WITH YOU AT YOUR NEXT VISIT.

VEGETABLES	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL
Bean sprouts								
Broccoli								
Cabbage								
Carrots								
Cauliflower								
Corn								
Green or wax beans								
Greens or kale								
Green or red peppers								
Lettuce								
Peas								
Potato (white)								
Pumpkin								
Rutabaga								
Spinach								
Squash (winter)								
Sweet potato								
Tomato								
Turnip								
TOTALS								

FRUITS/JUICES	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL
Apple or banana								
Apricots								
Dried fruit								
Melon								
Cantaloupe								
Orange, grapefruit								
Orange juice Grapefruit juice								
Plum peach, pear								
Strawberries								
Tomato juice								
V-8 juice								
TOTALS								

Do you take vitamin or mineral supplements? ____ Yes ____ No

Do you often eat laundry starch, clay, ice cubes or refrigerator frost? ____ Yes ____ No

Would you like to talk to someone about what you eat? ____ Yes ____ No

Eating Habits Questionnaire
Page 2

MILK/CHEESE	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL
Milk								
Cheese, yogurt, cottage cheese								
Ice cream, milk shakes								
Milk puddings, custards								
TOTALS								
MEATS/DRY BEANS								
Baked beans								
Beans, dried peas								
Beef (hamburger)								
Chili con carne								
Chicken, duck turkey								
Eggs								
Fish or sea food								
Ham or lean pork								
Hot dogs, lunchmeat, bologna, salami								
Lamb								
Liver or liver sausage								
Nuts, peanut butter								
Rabbit, deer, squirrel								
Sausage								
Tamales								
TOTALS								

BREAD/CEREALS	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL
Bread, rolls, buns, buscuits								
Cornbread								
Crackers								
Cream-of-Wheat Malt-O-Meal								
Grits								
Iron fortified cereals								
Other breakfast cereals								
Rice								
Spaghetti, macaroni, noodles								
Tortillas								
TOTALS								
SNACK FOODS								
Alcoholic beverages, beer, wine								
Candy, cake cookies, pie								
Diet soda								
Potato chips, Fritos, popcorn, pretzels								
Soft drinks								
OTHER FOODS/DRINK								
GRAND TOTALS								

NAME ____________________

DATE ____________________

INSTRUCTIONS FOR SCORING
EATING HABITS QUESTIONNAIRE

SCORE SHEET FOR EATING HABITS DURING PREGNANCY

This form evaluates the food consumption of the five food groups with specific references to protein, calcium, iron and vitamins A and C.

The following color coding has been used to identify the major nutrient sources:

Protein = Red, Vitamin A = Gold,
Vitamin C = Dark Green, Iron = Purple,
Calcium = Yellow-Green

Add the numbers within each food group to find the total score for that group. Add the numbers within each color code to find the total score for each nutrient.

FRUITS/JUICES AND VEGETABLE GROUPS (vitamins A, C, and iron):

Fruits should total a minimum of *7*.
Vegetables should total a minimum of *14*.
Fruits and vegetables together should total at least *28* or the individual may be inadequate in vitamins and minerals.

MILK/CHEESE GROUP (protein, calcium and riboflavin):

MEAT/DRY BEANS GROUP (protein, iron, and B vitamins):

Milk/cheese group should total a minimum of *21*.
Meat/dry beans group should total a minimum of *21*.
If these minimums are not met, the individual may be low in protein, calcium, riboflavin, iron and other vitamins and minerals.

BREAD/CEREAL GROUP (B vitamins, iron and some protein):

This group should total a minimum of *28* or the individual may be inadequate in B vitamins. Some bread and cereals are enriched or fortified with B vitamins and iron.

SNACK FOODS:

This group contains mainly calories from carbohydrate and fat. If eaten in excess (over 4 servings per day), the diet may provide excessive calories and prevent consumption of foods which provide needed nutrients.

VITAMIN A SOURCES:

(Green leafy and yellow vegetables and fruits such as broccoli, carrots, greens or kale, green or red pepper, pumpkin, winter squash, sweet potato, apricots, cantaloupe, tomatoes). Servings should total *7* per week (gold color code).

VITAMIN C SOURCES:

(Melon, cantaloupe, orange, grapefruit, strawberries, tomato juice, broccoli, greens, green and red pepper, spinach, tomatoes). Servings should total *10* per week (dark green color code).

CALCIUM SOURCES:

(Milk, cheese, cottage cheese, yogurt, ice cream, milk puddings, custard). Servings should total *21* per week, *35* for adolescents (yellow-green color code).

IRON SOURCES:

(All foods in meats/dry beans group; fortified breads and cereals, greens, kale, broccoli and spinach). Servings should total *28* per week* (purple color code).

PROTEIN SOURCES:

(Red and white meats, fish, poultry, eggs, dry beans, peanut butter, nuts, milk and cheese products). Servings should total *42* per week (red color code).

With the exception of the snack foods, all of the foods have at least small amounts of nutrients other than calories even though they are not color coded.

*There is great variation in iron content among foods. Special attention and sometimes consultation is necessary to evaluate iron intake, due to its important implications for anemia in pregnancy.

INSTRUCTRIONS FOR SCORING (Cont.)
EATING HABITS QUESTIONNAIRE

FOOD GROUPS AND NUTRIENTS

VEGETABLES:

Bean Sprouts—Vitamin C
Broccoli—Vitamins A and C
Cabbage—Vitamin C
Carrots—Vitamin A
Cauliflower**
Corn**
Green and Wax Beans**
Greens and Kale—Vitamins A and C, Iron
Green or Red Pepper—Vitamins A and C
Lettuce**
Peas**
Potato (white)**
Pumpkin—Vitamin A
Rutabaga**
Spinach—Vitamins A and C, Iron
Squash (winter) Vitamin A
Sweet Potato—Vitamin A
Tomato—Vitamins A and C
Turnip**

FRUITS/JUICES:

Apples, Bananas**
Apricots—Iron, Vitamin A
Dried Fruit—Iron
Melon—Vitamin C
Cantaloupe—Vitamins A and C
Oranges, Grapefruit—Vitamin C
Orange or Grapefruit Juice—Vitamin C
Peach, Pear, Plum**
Strawberries—Vitamin C
Tomato Juice—Vitamins A and C
V-8 Juice**

BREAD/CEREALS:

Bread, Rolls, Buns**
Cornbread**
Crackers**
Cream of Wheat or Malt-O-Meal—Iron
Grits**
Rice**
Spaghetti, Macaroni, Noodles**
Tortillas**
Iron Fortified Cereals—Iron
Other Breakfast Cereals**

MILK/CHEESE:

Milk—Protein, Calcium
Cheese, Yogurt, Cottage Cheese—Protein, Calcium
Ice Cream, Milk Shakes—Protein, Calcium
Milk Puddings, Custards—Protein, Calcium

MEATS/DRY BEANS:

Baked Beans—Iron, Protein, calcium
Beef—Iron, Protein
Chili con Carne—Iron, Protein
Chicken, Duck, Turkey—Iron, Protein
Dried Peas, Beans—Iron, Protein
Eggs—Protein
Fish or Sea Food—Iron, Protein
Lamb—Iron, Protein
Liver—Iron, Protein
Peanut Butter, Nuts—Iron, Protein
Pork or Ham—Iron, Protein
Rabbit, Squirrel, Deer—Iron, Protein
Hot Dogs, Lunch Meat—Iron, Protein
Sausage—Iron, Protein
Tamales—Iron, Protein

**These foods contain at least small nutrient values, though not included in the color coded totals.

YOUR DIET

TYPE OF MEASURE: Behavioral

OUTCOME ASSESSED: Maintenance of a Healthy Diet

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Your Diet is designed to indicate consumption of certain food groups, particularly those known to be good sources of the nutrients calcium, folacin, and iron. Individuals are asked to indicate the frequency of consumption for each of seven food groups: dairy products, animal protein foods, vegetable protein foods, fruits or juices, folacin-rich vegetables, other fruits or vegetables, and breads or cereals. Response options range from "hardly ever" to "3 or more times a day." The instrument takes about seven minutes to complete. Point values are given for each response. The scoring system assigns a greater number of points to those foods more frequently consumed. A maximum score of 45 may be obtained. High scores reflect more nutritionally adequate diets.

AUTHORS:

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Family Health Services, Bellfonte, Pennsylvania

Laura S. Sims
The Pennsylvania State University

ADDITIONAL INFORMATION:

Rosander, K. & Sims, L.S. Measuring effects of an affective-based nutrition education intervention. Journal of Nutrition Education, June 1981, 13 (3), 102-105.

YOUR DIET

Please take a minute to think about your diet.

Read the groups of foods listed below. Check (X) the column that shows how often you eat ANY of the foods in each group. Check ONLY ONE column for each food group.

FOOD GROUPS	HARDLY EVER	SEVERAL TIMES PER WEEK	ONCE DAILY	TWO TIMES PER DAY	3 OR MORE TIMES PER DAY
1. MILK, CHEESE, YOGURT, PUDDING CUSTARD	0	0	7	10	10
2. ANIMAL PROTEINS (beef, chicken, pork, fish, eggs)	0	0	7	10	10
3. VEGETABLE PROTEINS (beans, nuts, peas)	0	3	4	4	4
4. FRUIT or JUICE OF orange, grapefruit, tangerine, strawberries, tomato, peppers	0	2	4	4	4
5. BROCCOLI, LIMA BEANS, SPINACH, LETTUCE, OTHER GREENS	0	3	4	5	5
6. any other FRUIT or VEGETABLE	0	0	2	2	2
7. any type of CEREAL, BREAD ROLL, RICE, CRACKER, NOODLES, MACARONI, SPAGHETTI	0	0	0	7	10

NUTRIENT ADEQUACY REPORTING SYSTEM

TYPE OF MEASURE: Behavioral

OUTCOME ASSESSED: Maintenance of a Healthy Diet

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

The *Nutrient Adequacy Reporting System (NARS)* is a quantified daily food record form designed to evaluate food and/or nutrient consumption information. Respondents are asked to fill in the boxes representing the number of portions of each food eaten in one day. The measure contains explicit directions with examples of serving sizes as well as diagrams to help respondents judge pizza, meat, and cheese portions. The food form may be utilized in conjuction with a computer program designed to provide a nutrient intake profile in which servings from the four food groups and information about nutrient consumption are evaluated. The *NARS* has been used as a dietary assessment tool to monitor and evaluate progress of nutrition education programs by extension home economists.

TECHNICAL INFORMATION:

Sixty-six subjects participated in a study of the NARS in which comparisons were made between the abbreviated method of calculation used in the NARS and more usual calculation methods. Correlation coefficients were statistically significant for all 12 nutrients measured.

Data based on 24-hour recall techniques for the NARS were in substantial agreement with information obtained by subsequently using daily food records for a period of seven consecutive days.

AUTHOR: Nancy E. Johnson, Ph.D.
University of Wisconsin - Extension,
Madison, Wisconsin

ADDITIONAL INFORMATION:

Johnson, N.E., Nitzke, S., & VandeBerg, D.L. A reporting system for nutrient adequacy. *Home Economics Research Journal*, June 1974, *2* (4), 210-221.

Johnson, N.E., Sempos, C.T., Elmer, P.J., Allington, J.K., & Matthews, M.E. Development of a dietary intake monitoring system for nursing homes. Research, June 1982, *80*, 549-557

NUTRIENT ADEQUACY REPORTING SYSTEM

NUTRIENT ADEQUACY REPORTING INSTRUCTIONS

This is a daily food record. Every time you eat or drink something listed on this record during a single day, shade in the boxes to show how many of the portions listed would equal the amount you have eaten.

■ is 1 portion ⬓ is ½ portion

Examples:

1. Milk is in Group 1 and the portion size is one cup. If you drink ½ cup of milk, shade in a half box for Group 1. If you only use 1 tablespoon of milk, do not include it unless you have had 8 tablespoons or the equivalent of ½ cup milk during the day.

   For small amounts add them together if they will add up to ½ box.

2. Orange juice is in Group 13, and the portion size is ½ cup. If you drink one cup, you would shade 2 boxes because this is 2 portions.

3. Meat is harder to estimate. Turn over this sheet. Compare the size of the meat portion you eat with this model. The model represents 3 ounces of cooked meat. A serving of chicken is the amount of meat on a leg (thigh and drumstick) or on half a breast piece.

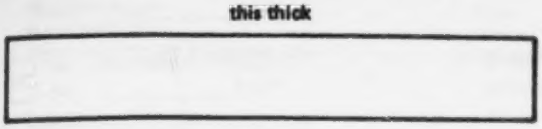
   Portion sizes for cheese or sandwich meat and pizza are also given on the back of this sheet of paper.

4. Mixed dishes are even harder to estimate. If you ate the amount of the ones listed in Group 8, shade in the correct number of boxes. If you ate a mixed dish not listed, try to estimate how much of each of the ingredients were in a serving. For example tuna and noodles: use the estimate of tuna in Group 5 as fish and the estimate of noodles under Group 16; if you added peas look at Group 9 for a serving of peas.

   If you cannot find the mixed dish ingredients, list the dish and amount under Group 18, other.

Do Not Record:

Do not record pop, candy, snack chips, alcoholic beverages or other foods with low nutrient content. Do not record small amounts of mustard, catsup, salad dressing or spices.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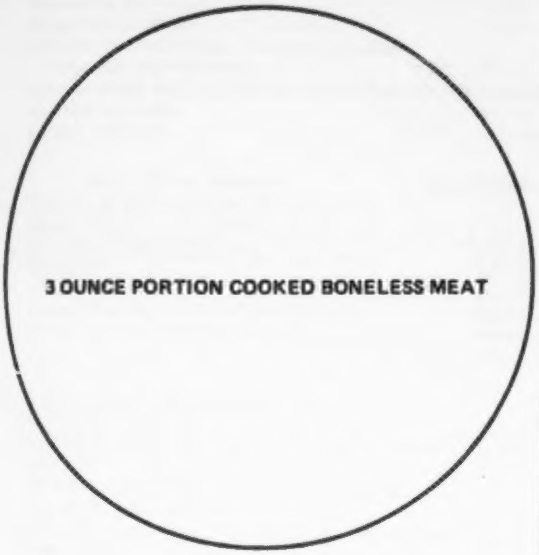
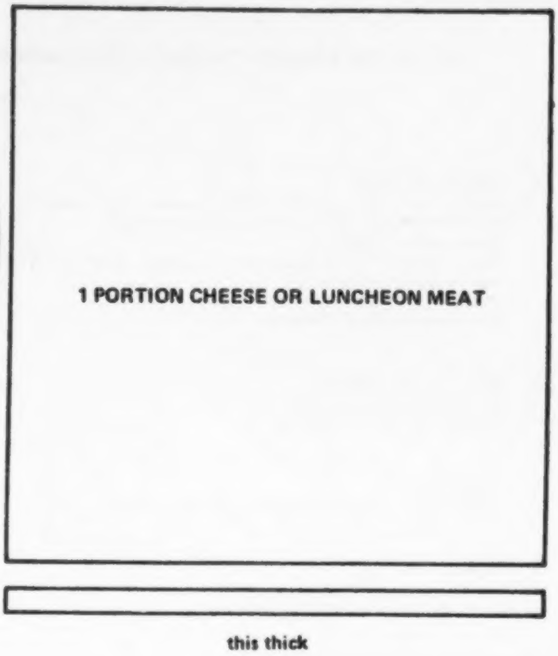
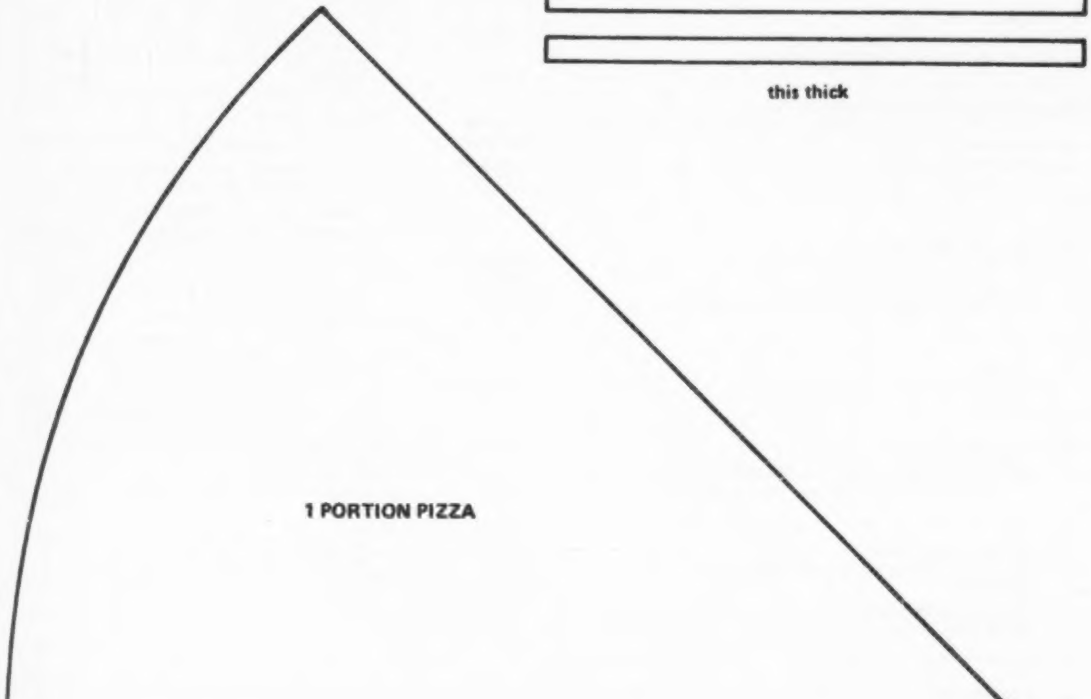

3 OUNCE PORTION COOKED BONELESS MEAT


1 PORTION CHEESE OR LUNCHEON MEAT
this thick


1 PORTION PIZZA

Nutrient Adequacy Reporting System
Page 3

Date ____________

Number _____ Age ______ (Check one) 1. ☐ Male
2. ☐ Female
3. ☐ Pregnant female
4. ☐ Nursing mother

Vitamin Supplement yes ☐
Kind ____________ no ☐

FILL IN THE BOXES WITH PENCIL TO SHOW THE NUMBER OF PORTIONS EATEN IN ONE DAY.

		PORTION SIZE	NUMBER OF PORTIONS
1.	**MILK AND DAIRY**		-- -- -- -- -- -- -- -- -- --
	MILK (whole, skim, 2%, buttermilk, chocolate milk, malted)	1 cup	
	CHEESE (cheddar, Swiss, American, cheese spreads)	1 ounce	
	COTTAGE CHEESE	½ cup	
	MILK DESSERTS (ice cream, ice milk, custard, pudding, yogurt)	1 cup	
	SOUPS MADE WITH MILK	1 cup	
	PIZZA	1 slice	
	MACARONIA AND CHEESE	½ cup	
2.	**BUTTER AND CREAM**		-- -- -- -- -- -- -- -- -- --
	BUTTER OR MARGARINE	1 pat (tsp)	
	CREAM (coffee or whipping)	1 Tbsp.	
3.	**EGGS**		-- -- -- -- -- -- -- -- -- --
	EGGS (fried, scrambled, boiled, poached)	1 egg	
4.	**PORK**		-- -- -- -- -- -- -- -- -- --
	PORK (ribs, ham, chops, roast, steak)	3 ounces	
5.	**OTHER LEAN MEATS AND FISH**		-- -- -- -- -- -- -- -- -- --
	BEEF (hamburger, meat loaf, roast, steak, corned or dried)	3 ounces	
	OTHER MEATS (chicken, turkey, veal, lamb, game meats)	3 ounces	
	FISH OR SEAFOOD	3 ounces	
	FISH STICKS	4 sticks	
6.	**MEAT PRODUCTS**		-- -- -- -- -- -- -- -- -- --
	BACON	2 slices	
	SAUSAGE (wiener, bratwurst)	1 link	
	LUNCHEON MEATS (bologna, salami, sandwich meats)	1 slice	
7.	**LIVER**		-- -- -- -- -- -- -- -- -- --
	LIVER (beef, pork, chicken, calf)	3 ounces	
8.	**MEAT DISHES**		-- -- -- -- -- -- -- -- -- --
	MAIN DISHES (chili, stew, meat casserole, pot pies, chicken ala king, spaghetti and meat balls or sauce)	1 cup	
9.	**BEANS, PEAS, NUTS**		-- -- -- -- -- -- -- -- -- --
	DRIED, COOKED BEANS OR PEAS	½ cup	
	NUTS	½ cup	
	PEA OR BEAN SOUP	1 cup	
	PEANUT BUTTER	2 Tbsp.	
10.	**POTATOES**		-- -- -- -- -- -- -- -- -- --
	POTATOES (baked, fried, boiled, potato salad)	1 med. potato	
	FRENCH FRIES	15 pieces	
	MASHED POTATOES	1 cup	

		PORTION SIZE	NUMBER OF PORTIONS
11.	**VEGETABLES AND FRUITS – I**		-- | -- | -- | -- | -- | -- | -- | -- | -- | --
	BROCCOLI	¼ cup	
	TOMATOES, TOMATO JUICE	½ cup	
	TOMATO SOUP	1 cup	
	WATERMELON	1 slice	
	CANTALOUPE OR MUSKMELON	1/8 melon	
12.	**VEGETABLES AND FRUITS – II**		-- | -- | -- | -- | -- | -- | -- | -- | -- | --
	CARROTS, SPINACH	¼ cup	
	VEGETABLE SOUP	1 cup	
	APRICOTS, CHERRIES, PEACHES, PLUMS, PRUNES, NECTARINES	½ cup	
	PUMPKIN PIE	1 piece	
	WINTER SQUASH	¼ cup	
	SWEET POTATO	½ potato	
13.	**VEGETABLES AND FRUITS – III**		-- | -- | -- | -- | -- | -- | -- | -- | -- | --
	CABBAGE, CAULIFLOWER	1 cup	
	STRAWBERRIES, PEPPERS	½ cup	
	ORANGE	1 fruit	
	GRAPEFRUIT	½ fruit	
	ORANGE JUICE, GRAPEFRUIT JUICE	½ cup	
	VITAMIN C FORTIFIED DRINKS	1 cup	
14.	**VEGETABLES AND FRUITS – IV**		-- | -- | -- | -- | -- | -- | -- | -- | -- | --
	LETTUCE	1/6 head	
	GREEN OR WAX BEANS, BEETS, CORN, PEAS	½ cup	
	APPLE	1 fruit	
	APPLESAUCE, FRUIT COCKTAIL, GRAPES, PEARS, PINEAPPLE	½ cup	
	BLACKBERRIES, RASPBERRIES, BLUEBERRIES	½ cup	
	FRUIT JUICES (all except those in group 13)	½ cup	
	RAISINS, DATES	¼ cup	
15.	**BANANAS**		-- | -- | -- | -- | -- | -- | -- | -- | -- | --
	BANANA	1 fruit	
16.	**BREADS, ROLLS, CEREALS**		-- | -- | -- | -- | -- | -- | -- | -- | -- | --
	BREAD (enriched or whole grain)	1 slice	
	ROLLS, BUNS, BISCUITS, MUFFINS	1 roll	
	DRY CEREALS (whole grain or enriched)	1 cup	
	COOKED CEREALS (oatmeal, cornmeal, cream of wheat, farina)	½ cup	
	PANCAKES	2 cakes	
	WAFFLES	1 waffle	
	MACARONI, NOODLES, RICE, SPAGHETTI (enriched, cooked)	½ cup	
17.	**HIGHLY ENRICHED CEREALS**		-- | -- | -- | -- | -- | -- | -- | -- | -- | --
	TOTAL, PRODUCT 19, BUCKWHEATS, LIFE, ETC.	1 cup	

18. **OTHER**

Food	Amount	Food	Amount
____________	______	____________	______
____________	______	____________	______
____________	______	____________	______

When you've completed this questionaire, tear it off and hand it to your Extension Home Economist.

MEASURING THE BODY'S ENERGY NEEDS

TYPE OF MEASURE: Behavioral

OUTCOME ASSESSED: Balancing Caloric Intake with Energy Expenditure

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

This measure is designed to provide a detailed method for determining daily energy needs. Respondents are asked to recall their physical activities for a 24-hour period, then note how many minutes were spent at each of eight energy levels. The energy cost in kilocalories for each activity is calculated and totalled to obtain the daily energy expenditure. Charts and graphs are provided to aid in the step-by-step calculations. The physical activities logs are used to classify the respondents' lifestyles based on activity levels. Classifications range from sedentary to vigorous.

This measure, when given in conjunction with the information from a daily food intake measure, can be used to determine how effectively a program has aided individuals in achieving an appropriate balance between energy intake and expenditure.

AUTHORS:

Eva May Hamilton and Eleanor Whitney
Florida State University

ADDITIONAL INFORMATION:

This measure is copyrighted. The measure and directions for use can be found in:

Hamilton, E.M., & Whitney, E. Nutrition: Concepts and controversies. St. Paul, Minnesota: West Publishing Co., 1979, 161-171.

DO YOU KNOW?

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Food Composition and Guidelines

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Do You Know? is designed to measure knowledge about nutrients and food groups. This nutrition test is comprised of 50 multiple-choice items about basic nutrition principles, sources of nutrients, and functions of nutrients. Each item has four response options of which only one is correct. A scoring key is provided.

TECHNICAL INFORMATION:

The test was completed by 576 subjects whose responses yielded an internal consistency reliability coefficient (KR-20) of .82. Internal consistency coefficients for the test's three subtests were .54, .58, and .69.

Six different groups were represented among the 576 individuals completing the test. Scores of the six groups, when subjected to an analysis of variance and Tukey's method of distinguishing among groups, revealed results consonant with the test author's predictions. Nutritionists, for example, scored significantly higher than home economists, who scored significantly higher than nurses. Elementary educators scored significantly lower than the other five groups. The author concluded that "these results demonstrate the concurrent validity of the test."

AUTHOR: Carol Byrd-Bredbenner, Ph.D.
Pennsylvania State University

ADDITIONAL INFORMATION:

Byrd-Bredbenner, C. The interrelationships of nutrition knowledge, attitudes toward nutrition, dietary behavior and commitment to the concern for nutrition education. Unpublished doctoral dissertation, The Pennsylvania State University, 1980.

DO YOU KNOW?

Directions: Read each item carefully. Circle the letter that indicates the best answer as shown in the example.

Example: A diet that provides an adequate amount of nutrients can usually be insured by eating
(a) a wide variety of foods
b. foods with carbohydrates and fats
c. foods that you enjoy eating
d. foods rich in protein and fat

1. Individuals use the Basic 4 Food Groups to
   a. determine amounts of nutrients needed daily
   b. calculate amounts of calories needed daily
   c. determine the nutritive value of foods
   d. select foods containing needed nutrients

2. When planning meals for each day, one should include a minimum number of servings from the Basic 4 Food Groups to
   a. meet the daily requirements for the 4 major nutrients
   b. get all of the needed nutrients
   c. get all of the needed food
   d. feel good and stay healthy

3. Sugar can be described as
   a. a nutrient dense food
   b. providing little energy
   c. an empty calorie food
   d. containing a large amount of protein

4. The amount of energy needed by individuals
   a. is always met by the Basic 4 Food Groups
   b. is greater for women than children per pound of body weight
   c. is the same for most men
   d. will differ according to size and activity

5. One way for teenagers to get additional energy they need is through
   a. more carbohydrates
   b. extra iron
   c. extra vitamins
   d. all of the above

6. The purpose of energy is
   a. to allow the body to function
   b. to regulate body weight
   c. to maintain acid-base balance in the body
   d. to regulate body temperature

7. When compared to potato chips, apples have
   a. more energy
   b. less protein
   c. more nutrients
   d. more fat

8. A "nutrient dense" food is a food which has
   a. many calories and many nutrients
   b. a high percentage of the nutrients required
   c. many nutrients in comparison to its calories
   d. many calories in comparison to its nutrients

9. The best way to have adequate vitamin intake is to
   a. take mineral supplements
   b. eat a lot of meat products
   c. eat a wide variety of foods
   d. take vitamin pills made from natural sources

10. The Basic 4 Food Groups are
   a. daily requirements for the 4 major nutrients
   b. a good way to choose foods for a balanced diet
   c. a way of classifying carbohydrates
   d. used to determine the nutritive value of foods

11. To improve dietary intake one should
   a. use brown eggs instead of white eggs
   b. use whole grain or enriched flour
   c. eat white bread instead of brown bread
   d. all of the above

12. A well balanced meal is one that
   a. includes the right amounts of all the food groups
   b. contains small amounts of bread or potatoes
   c. is not too starchy or too fatty
   d. includes more protein than carbohydrates

13. In cooking vegetables and fruits, nutrients are retained best when
   a. baking soda is added to green vegetables
   b. skins are peeled off
   c. cooked at a low temperature for a long time
   d. cut into large pieces

14. The snack with the highest energy and the most nutrition is
   a. a celery stick
   b. a chocolate candy bar
   c. an oatmeal cookie with raisins
   d. 20 potato chips.

15. To reduce the amount of vitamins and minerals lost in cooking,
    a. soak potatoes in water before cooking
    b. use a great quantity of water
    c. add salt to cooking water
    d. use as little water as possible

16. A 165 pound, 18 year old football player needs more protein than
    a. a 165 pound, 18 year old golfer
    b. an inactive 165 pound, 18 year old man
    c. a 165 pound, 18 year old store clerk
    d. none of the above

17. If calories eaten are fewer than those expended,
    a. body water must be used for energy
    b. cellulite is dissolved
    c. body fat must be used for energy
    d. body fat becomes muscle

18. A good way to reduce body weight is to
    a. eliminate carbohydrates
    b. increase physical work
    c. increase mental activity
    d. all of the above

19. If you want to gain weight, you should
    a. eat only foods rich in fat
    b. take increased doses of vitamins and minerals
    c. eat more food than needed
    d. eat more protein

20. If you want to become more muscular, you should
    a. avoid carbohydrates
    b. eat more protein
    c. exercise more
    d. both b and c

21. Pregnant women need
    a. to follow the Basic 4 Food Group recommendations for adults
    b. to restrict food intake in order to control weight gain
    c. more nutrients than most adult women
    d. less salt than most adult women

22. The aged usually need
    a. more protein to maintain muscles
    b. less fat and carbohydrates for energy
    c. more carbohydrates in the diet for cell repair
    d. larger amounts of calcium than younger adults

32. A good source of vitamin C which might substitute for one tomato is
    a. 1 cup of cabbage
    b. 1 small sweet potato
    c. 1/2 cup of corn
    d. 1/2 cup of green beans

33. Salt water fish are an important source of
    a. iron
    b. iodine
    c. riboflavin
    d. vitamin C

34. Green and yellow vegetables are important for
    a. vitamin A
    b. ascorbic acid
    c. riboflavin
    d. B vitamins

35. Enriched or whole grained bread, cereals, rice, and pasta are good sources of
    a. carbohydrates
    b. B vitamins
    c. iron
    d. all of the above

36. Calcium is found abundantly in
    a. apples
    b. dried fruit
    c. cheese
    d. fish

37. The best source of protein in the following list is
    a. gelatin
    b. peanut butter
    c. cream cheese
    d. all of the above

38. A good source of vitamin D is
    a. sunlight
    b. fortified milk
    c. liver
    d. all of the above

39. Protein sources include
    a. nuts
    b. legumes
    c. liver
    d. all of the above

40. Nutrients which provide energy are
    a. fat, vitamins and carbohydrates
    b. minerals, vitamins and fat
    c. vitamins, protein and fat
    d. protein, fat and carbohydrates

41. The role of each nutrient is
    a. to provide energy for work and play
    b. to aid in body function
    c. to balance the diet
    d. to aid in proper digestion

42. Vitamins function to help
    a. prevent goiter and anemia
    b. maintain skin elasticity
    c. in growth and regulating body processes
    d. enrich blood

43. Vitamin D is needed in the diet because it
    a. helps build strong teeth
    b. helps keep gums healthy
    c. maintains body temperature
    d. repairs body cells

44. The importance of calcium in the diet is to
    a. help make our bones strong and straight
    b. spare protein for purposes of body repair
    c. provide all nutrients needed by the body
    d. help muscles to relax

45. An important property of fat is that it is
    a. the most concentrated source of energy
    b. a type of protein
    c. found in all foods
    d. recommended to be omitted from a reducing diet

46. Water is an important
    a. source of minerals
    b. part of cells
    c. source of iodine
    d. nutrient for repair of cells

47. Eggs and cheese can take the place of meats in our diets because they
    a. are easier to digest
    b. provide approximately equal amount of protein
    c. are also the products of animals
    d. are excellent sources of unsaturated fat

48. The function of protein foods is to
    a. add fiber to our diets
    b. provide energy
    c. repair body tissue
    d. prevent bruising

49. Milk and milk products are most important for
    a. adding all nutrients to our diet
    b. maintaining bones and teeth
    c. preventing a disease called scurvy
    d. promoting proper digestion

50. Vitamins and minerals function to
    a. maintain acid-base balance
    b. maintain energy levels
    c. add fiber to our diet
    d. maintain good health

INSTRUCTIONS FOR SCORING
DO YOU KNOW?

Each correct answer receives a score of one point. The total number of correct answers equals the nutrition knowledge test score. The highest overall test score possible is 50.

Subscales

The subscales are scored must like the scoring procedure for the nutrition knowledge test. One point for each correct answer. The number of correct answers equals the nutrition subscale test score. A total of all three subscale test scores equals the total nutrition knowledge test score.

Subscale I	Basic Nutrition Principles:	questions 1-4, 6-22, 24-26, 47; highest possible score = 25.
Subscale II	Sources of Nutrients:	questions 5, 23, 28-39; highest possible score = 14.
Subscale III	Functions of Nutrients:	questions 27, 40-46, 48-50; highest possible score = 11.

Nutrition Knowledge Test Key

1. D
2. B
3. C
4. D
5. A
6. A
7. C
8. C
9. C
10. B
11. B
12. A
13. D
14. C
15. D
16. D
17. C
18. B
19. C
20. C
21. C
22. B
23. C
24. D
25. C
26. B
27. B
28. A
29. C
30. D
31. B
32. A
33. B
34. A
35. D
36. C
37. B
38. D
39. D
40. D
41. B
42. C
43. A
44. A
45. A
46. B
47. B
48. C
49. B
50. D

NUTRITION KNOWLEDGE TEST

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Food Composition and Guidelines

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

The Nutrition Knowledge Test (NKT) is designed to measure knowledge about foods and nutrients. The first 12 items are true-false statements about basic nutrition concepts. The remaining 28 multiple-choice items are relevant to Recommended Dietary Allowances; information about foods and nutrients, including nutrient sources and food group classifications; as well as dietary guidelines for carbohydrate, fat, or sodium intake. The questions on the NKT are based on concepts outlined by the 1969 White House Conference on Food, Nutrition and Health.

TECHNICAL INFORMATION:

This measure was developed from three earlier test forms, each consisting of 15 true-false items and 20 multiple-choice items. Based on tryouts of these measures a near-final form of the NKT was administered by mail to 299 nutrition educators and two groups of public school teachers, that is, 208 members of a state education association and 61 workshop attendees. That form of the instrument (16 true-false and 34 multiple-choice items) yielded markedly different mean scores for the nutrition educators (38.38) and the two groups of teachers (28.14 and 14.57 respectively). The authors concluded that these differential scores established the concurrent validity of the test, The internal consistency (KR-20) of that near-final version of the test was .93.

After item analyses, a final 40-item version of the test was developed using items whose item-discrimination index was, generally, .40 or higher. No internal consistency estimate was reported for the final version of the NKT.

AUTHORS: Carolyn Lackey, Kathryn Kolassa, Karen Penner,
and Barbara Mutch
Michigan State University, East Lansing, Michigan

ADDITIONAL INFORMATION:

Lackey, C.J., Kolassa, K.M., Penner, K.P., & Mutch, B.L. Development of the NKT - a general nutrition knowledge test for teachers. Journal of Nutrition Education, 1981, 13 (3), 100-101.

NUTRITION KNOWLEDGE TEST

Directions

This Booklet consists of True-False and Multiple Choice items. With a No. 2 pencil, blacken the circle immedia to the left of the response you choose. DO NOT USE ink, ballpoint or felt tip pens.

Items 1 - 12 are either true or false. If a statement is true, fill in the circle immediately to the left of "TRUE." If t statement is false, fill in the circle immediately to the left of "FALSE."

Items 13 - 40 are multiple choice. Choose the best answer from the alternatives provided. Fill in the circle i mediately to the left of the answer you have selected.

IT IS IMPORTANT THAT YOU ANSWER ALL QUESTIONS EVEN IF YOU ARE NOT SURE OF YOU ANSWERS.

Fill in circles completely and erase totally any answer you wish to change.

AGAIN, USE A NO. 2 LEAD PENCIL TO BLACKEN THE CIRCLE IMMEDIATELY TO THE LEFT OF TH RESPONSE YOU CHOOSE. DO NOT USE INK, BALLPOINT OR FELT-TIP PENS.

True-False

Answer the following questions by filling in the circle to the **left** of either "true" or "false."

1. All nutrients are chemicals
○ True ○ False

2. Vitamin E eaten or taken as a supplement beyond the body's requirements is stored in the body.
○ True ○ False

3. An ounce of carbohydrate has more calories than an ounce of protein.
○ True ○ False

4. Minerals provide the body with small amounts of calories.
○ True ○ False

5. Some foods by themselves have all the nutrients in the amounts needed for adequate growth and health.
○ True ○ False

6. The teenage habit of snacking can provide valuable nutrients.
○ True ○ False

7. Pesticides and other pollutants are incidental food additives.
○ True ○ False

8. Vitamin A is toxic when consumed in large quantities.
○ True ○ False

9. As a person ages generally, energy needs are reduced while nutrient needs remain the same.
○ True ○ False

10. If a child refuses milk, an acceptable food to provide similar nutrients would be eggs.
○ True ○ False

11. Nutrition labels are required on all canned goods.
○ True ○ False

12. There are no known dietary cures for diseases such as diabetes and heart disease.
○ True ○ False

Multiple Choice

Answer the following questions by filling in the circle to the left of the four answers.

13. Decreasing caloric intake by 500 calories per day would mean a loss of about one pound of body fat in
○ 2 days ○ 10 days
○ 7 days ○ 14 days

14. Which of the following is a vitamin?
○ fluoride ○ fructose
○ folacin ○ iron

15. The RDA's (Recommended Dietary Allowances) are nutrient levels
○ used as guidelines for diet planning
○ which insure good health for all individuals
○ which represent minimum daily needs
○ all of the above

16. Weight gain results, if at all, when calorie intake
○ is from high fat foods
○ is from high sugar content foods
○ is more than calorie expenditure
○ all of the above

17. Of the following, the best food source of both vitamin A and vitamin C is
○ apple ○ broccoli
○ apricot ○ carrot

18. Which of the following is the best food source of calcium?
○ butter ○ tomato juice
○ kelp ○ yogurt

19. The most concentrated source of calories is
○ fat ○ starch
○ protein ○ sugar

20. One of the first symptoms of vitamin A deficiency is
○ anemia ○ night blindness
○ jaundice ○ scurvy

21. The fat soluble vitamins include
○ A, B_1, B_{12} and D
○ A, C, D, and E
○ A, D, E and K
○ B_1, B_6, B_{12} and C

22. Vitamins are
○ a source of energy
○ indestructable
○ inorganic compounds
○ organic compounds

pages tightly bound

23. Which vitamin can be made in the body when sun rays contact the skin?

○ A ○ C
○ B_{12} ○ D

24. The chief function of carbohydrate we eat is to

○ maintain body fat
○ provide energy
○ provide essential amino acids
○ transport vitamin A

25. Sodium, found in table salt and in food

○ can be deactivated by chloride
○ helps maintain water balance
○ helps prevent scurvy
○ is a non essential nutrient

26. Enriched foods have nutrients

○ added that were not originally present or not present in the quantity added
○ replaced that were removed during processing
○ that are chemically inferior to the natural ones present in the food
○ that are chemically superior to the natural ones present in the food

27. If the cream is skimmed from milk, which nutrient will be reduced unless it is added back after processing?

○ calcium ○ vitamin B_{12}
○ vitamin A ○ vitamin C

28. According to the Daily Food Guide it is recommended that children and adults have how many servings of fruit and/or vegeta
day?

○ 1 ○ 3
○ 2 ○ 4

29. People with hypertension may need to reduce their intake of

○ alcohol ○ sodium
○ potassium ○ sugar

30. Peanut butter belongs to which of the Daily Food Guide groups?

○ breads and cereals ○ meat
○ fruits and vegetables ○ milk and dairy products

31. Eggs belong to which of the Daily Food Guide groups?

○ breads and cereals ○ meat
○ fruits and vegetables ○ milk and dairy products

32. A child's lunch should supply how much of his nutritional needs for a day?

○ 25% ○ 45%
○ 33% ○ 50%

33. According to the Daily Food Guide it is recommended that teenagers have how many servings from the milk group per day?

○ 2 ○ 4
○ 3 ○ 5

34. According to the Daily Food Guide it is recommended that children and adults have how many servings of meat or protei

○ 1 ○ 3
○ 2 ○ 4

35. During pregnancy, most women (age 23 and above) should
- ○ increase their food intake by 300 calories per day
- ○ limit their weight gain to 15 20 pounds
- ○ restrict their sodium intake
- ○ take mega vitamin supplements

36. Which of the following food combinations would provide a complete protein?
- ○ beans and lentils
- ○ corn and wheat
- ○ rice and beans
- ○ rice and broccoli

37. Vegetarians who eat no animal products or fortified products may need to supplement their diets with
- ○ iron
- ○ magnesium
- ○ vitamin A
- ○ vitamin B_{12}

38. Labeling laws require that food product ingredients be listed on the container in descending order of their
- ○ calories
- ○ cost
- ○ nutrients
- ○ weight

39. Vitamin C found in an orange is chemically
- ○ identical but more nutritious than vitamin C made in a lab
- ○ identical to vitamin C made in a lab
- ○ inferior to vitamin C made in a lab
- ○ superior to vitamin C made in a lab

40. If a food additive is found to cause cancer in a laboratory rat, the FDA must, under the Delaney Clause of The Additive Amendment of 1958
- ○ ban the use of that additive
- ○ establish an allowable level for food additives
- ○ order investigative hearings
- ○ order lab testing in humans

THANK YOU FOR COMPLETING THE NUTRITION KNOWLEDGE TEST

Nutrition Education and Training
Food Science and Human Nutrition
1979

pages tightly bound

READEX
FICHE

SCORING KEY
NUTRITION KNOWLEDGE TEST

True - False

1. T
2. T
3. F
4. F
5. F
6. T
7. T
8. T
9. T
10. F
11. F
12. T

MULTIPLE CHOICE

13. 7 days
14. Folacin
15. Used as guidelines for diet planning
16. Is more than calorie expenditure
17. Broccoli
18. Yogurt
19. Fat
20. Night blindness
21. A, D, E, and K
22. Organic compounds
23. Vitamin D
24. Provide energy
25. Helps maintain water balance
26. Replaced that were removed during processing
27. Vitamin A
28. 4
29. Sodium
30. Meat group
31. Meat group
32. 33%
33. 4
34. 2
35. Increase their food intake by 300 calories per day
36. Rice and beans
37. Vitamin B_{12}
38. Weight
39. Identical to Vitamin C made in a lab
40. Ban the use of that additive

NUTRITION KNOWLEDGE (NUTRITION, DIET, AND HEART DISEASE)

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Health Consequences of Food and Diet

TARGET POPULATION: Adults or Adolescents

Nutrition Knowledge consists of 27 true and false statements concerning nutrition, diet, and heart disease. Three subtests are included in the instrument: one on how food affects the heart, one on food composition and one on current facts versus fallacies. All statements are based on the recommendations released by Health and Welfare Canada as the Report of the Committee on Diet and Cardiovascular Disease. Individuals respond to the statements by circling the number that best indicates their knowledge of each statement. They are to use a scale from 1 to 5, where 1 = the statement is definitely false; 2 = the statement is probably false, 3 = do not know; 4 = the statement is probably true, and 5 = the statement is definitely true.

TECHNICAL INFORMATION:

This instrument was validated on a sample of 281 Canadian-born adult women. Internal consistency reliability coefficients for the knowledge subtests were .45, .64 and .62. Cronbach's alpha for the total knowledge test was .72. The mean percent correct for the knowledge subtests and the total test ranged from 48 to 53% with standard deviations of 12 to 17%.

In previous validation efforts, an earlier version of the measure was reviewed by an independent panel of five nutritionists who evaluated the correctness of the key and overall comprehensiveness of the instruments. The measure was also administered to 76 individuals representing a range of formal training in nutrition. Selected items were revised or eliminated based on these procedures and are not included in the current version.

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ADDITIONAL INFORMATION:

Sullivan, A.D., & Schwartz, N.E. Attitudes, knowledge and practice related to diet, and cardiovascular disease. Journal of Canadian Dietetic Association, 1981, 42, 169-177.

Sullivan, A.D., & Schwartz, N.E. Assessment of attitudes and knowledge about diet and heart disease. Journal of Nutrition Education, 1981, 13(3), 106-108.

NUTRITION KNOWLEDGE (NUTRITION, DIET, AND HEART DISEASE)

Some true and false statements concerning nutrition, diet and heart disease are below. Please circle the number which best indicates your knowledge of each statement. Circle:

1 if the statement is DEFINITELY FALSE
2 if the statement is PROBABLY FALSE
3 if you DO NOT KNOW
4 if the statement is PROBABLY TRUE
5 if the statement is DEFINITELY TRUE

	DEFINITELY FALSE	PROBABLY FALSE	DON'T KNOW	PROBABLY TRUE	DEFINITELY TRUE
20. Alcoholic beverages add extra calories to the diet.	1	2	3	4	5
21. Garlic purifies the blood thus protecting against heart disease.	1	2	3	4	5
22. It is unnecessary for healthy people to limit their intake of cholesterol, a fatty substance found in animal foods.	1	2	3	4	5
23. Non-dairy cream substitutes such as Coffee-Mate contain fat.	1	2	3	4	5
24. What one eats affects the amount of fat in the blood.	1	2	3	4	5
25. Being thin is no guarantee against heart disease.	1	2	3	4	5
26. Hardening of the arteries (atherosclerosis) is caused by fat in the diet.	1	2	3	4	5
27. The more polyunsaturated fat in the diet, the better protected one is against heart disease.	1	2	3	4	5
28. High blood pressure is caused by high salt intake.	1	2	3	4	5
29. Normal weight people need not exercise to protect their heart.	1	2	3	4	5
30. Polyunsaturated fats are made up of polyunsaturated fatty acids, the most important of which is linoleic acid.	1	2	3	4	5

Nutrition Knowledge (Nutrition, Diet, and Heart Disease)
Page 2

	DEFINITELY FALSE	PROBABLY FALSE	DON'T KNOW	PROBABLY TRUE	DEFI T
31. Just because no one in your family has had heart problems does not mean you are protected against heart disease.	1	2	3	4	5
32. A good way to lose weight is to eat a high meat diet.	1	2	3	4	5
33. Weight for weight, hamburger has the same energy value as white chicken breast meat.	1	2	3	4	5
34. Of all the vegetable oils, corn oil contains the most polyunsaturated fat.	1	2	3	4	5
35. Olive oil contains less polyunsaturated fat than safflower oil.	1	2	3	4	5
36. Heart disease affects only people who over eat.	1	2	3	4	5
37. Lecithin, a fatty substance in animal tissue and eggs, prevents heart disease by clearing cholesterol from the arteries.	1	2	3	4	5
38. Drinking hard water causes heart disease.	1	2	3	4	5
39. Obese (very fat) people have a greater chance of a fatal heart attack than people of normal weight.	1	2	3	4	5
40. Vitamin C cures heart disease by removing fat from the blood stream.	1	2	3	4	5
41. Processed meats like sausage and salami are high in saturated fat.	1	2	3	4	5
42. People do not outgrow the need for regular exercise.	1	2	3	4	5
43. Due to their high cholesterol content, eggs should be eliminated from the diet.	1	2	3	4	5
44. White fish such as cod and haddock is lower in fat content than beef.	1	2	3	4	5
45. The food we eat affects the development of heart disease.	1	2	3	4	5
46. Fruit drinks such as Tang are a nutritious substitute for fresh fruits.	1	2	3	4	5

PLEASE CHECK TO BE SURE ALL STATEMENTS HAVE BEEN ANSWERED

NUTRITION!!!

TYPE OF MEASURE: Skill

OUTCOME ASSESSED: Diet Plan Analysis

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Nutrition!!! is designed to assess whether individuals can select foods in accordance with specific dietary needs. The instrument has two parts. The first ten items are true or false statements about nutrient uses and sources. The remaining items ask the respondents to select the most appropriate dietary plan based on the circumstances presented in the question. An answer key is provided. Points are given for correct answers.

TECHNICAL INFORMATION:

The instrument was administered to 45 women. One of the instrument's 18 items was eliminated in order to improve the measure's internal consistency. The final 17-item instrument had an internal consistency coefficient (Kuden-Richardson 20) of .79.

For 22 of their 45 subjects, the instrument was re-administered after a three-month time interval. The resulting stability coefficient was .62.

AUTHORS: Karin Rosander
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ADDITIONAL INFORMATION:

Rosander, K., & Sims, L.S. Measuring effects of an affective-based nutrition education intervention. Journal of Nutrition Education, June 1981, 13 (3), 102-105.

NUTRITION !!!

PLEASE ANSWER THE FOLLOWING QUESTIONS AS BEST YOU CAN.

TRUE-FALSE: Place an (X) in the "True" column if you believe that the state is true, or in the "False" column if you believe that the state is false.

	TRUE	FALSE
1. Eating a variety of foods is not important as long as a person drinks three glasses of milk each day.		
2. Anemia is not affected by diet.		
3. Folacin is a B vitamin.		
4. A nutrient which helps build strong teeth and bones is folacin.		
5. Eating a variety of foods is the most important thing to think about when selecting your diet.		
6. Extreme weakness and lack of energy may be a sign of anemia.		
7. You need calcium to build muscles.		
8. Folacin is a nutrient found in leafy green vegetables such as kale and spinach.		
9. You need calcium to build strong bones and teeth.		
10. Green vegetables are not a good source of folacin.		

MULTIPLE CHOICE: For each of the following questions, circle the letter in front of the one phrase which you feel answers the questio best.

11. Let's pretend that these are the foods you ate yesterday.

Breakfast: coffee, two poached eggs, toast
Lunch: cheese sandwich, milk, chips
Snack: milk, cookies
Supper: noodles, beef stew with vegetables, roll with butte
milk, ice cream

Now, keeping this diet in mind, which foods should you eat more often for a balanced diet?

_____ 1. milk and milk products

_____ 2. fruits and vegetables

_____ 3. meat and other protein foods

12. You have just received the results of your blood tests. You are told that you have a low iron level. What are you going to do?

______ 1. go buy some eggs and a package of dried beans.
______ 2. go buy some milk and cheese.
______ 3. go buy some orange juice and tomatoes.

13. Anemia may be prevented by making sure your diet has plenty of:

______ 1. vitamin A.
______ 2. iron.
______ 3. vitamin C.

14. The nutritionist at the clinic has told you that you should be eating more calcium-rich foods. Which food(s) would you add to your diet?

______ 1. milk or buttermilk.
______ 2. chicken or fish.
______ 3. whole wheat bread.

15. Suppose that this morning you've been told that you should be eating more foods rich in folacin. At the grocery store you would select which group of foods?

______ 1. tomato juice and cream of wheat.
______ 2. nonfat dry milk and carrots.
______ 3. spinach and lima beans.

16. Check those food(s) which could substitute for milk, without changing the amount of calcium in your diet:

______ eggs
______ cheddar cheese
______ cereal
______ peanut butter
______ yogurt
______ hamburger
______ ice cream
______ butter

17. A low level of iron in the blood means that you should be eating more:

______ 1. oranges and apples.
______ 2. milk and cheese.
______ 3. eggs and beans.

18. You need calcium in your diet to:

______ 1. prevent anemia.
______ 2. keep bones and teeth healthy.
______ 3. build muscles.

SCORING KEY
NUTRITION !!!

Item	Answer
1	F
2	F
3	T
4	F
5	T
6	T
7	F
8	T
9	T
10	F
11	2
12	1
13	2
14	1
15	3
16	cheddar cheese, yogurt, ice cream
17	3
18	2

FOOD LABEL INFORMATION

TYPE OF MEASURE: Skill

OUTCOME ASSESSED: Analysis of Nutrition Information

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Food Label Information represents one part of a longer test designed to measure knowledge gains resulting from a food and nutrition minicourse developed for high school students. This portion of the measure has been excerpted for the handbook because of its correspondence with the panelist-identified outcome of nutritional information analysis. Individuals are asked to respond to four open-ended and three multiple-choice items based on the nutritional information presented in labels from two boxes of cereal. In addition, individuals are to answer two multiple-choice and two open-ended questions based on an R.D.A. Table they are shown. An answer key provides the correct answers for the selected response items and sample answers for the constructed-response items.

TECHNICAL INFORMATION

The complete measure was administered as a pretest and posttest to 108 eleventh and twelfth grade students in six (three experimental, three control) classes. Experimental classes were given a 20-30 hour minicourse on food and nutrition between the two test administrations. Gains from pretest to posttest in all three experimental classes were significantly larger than gains in the control classes.

The internal consistency reliability of the test was completed (using KR-20) separately for each of the six classes at each of the testing periods. KR-20 indices ranged from .23 to .75 for the experimental classes and from -.48 to .71 for the control classes. The authors attribute the one negative reliability coefficient to the poor attitude of the control classes.

AUTHOR: Shirley M. Picardi
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ADDITIONAL INFORMATION:

Picardi, S.M., & Porter, D. Multidimensional evaluation of a food and nutrition minicourse. Journal of Nutrition Education, October-December, 1976, 8(4), 162-168.

FOOD LABEL INFORMATION

Name ______________________________ Date ____________________

School ______________________________ Grade ______ Age ________

Start Time: _______________ Finish Time: ____________________

****

Please answer all questions in the spaces provided. Note your start and finish times.

****

===

On page 2, label information on 2 breakfast cereals is shown. This information may be of help in answering questions #1-7.

===

1. (5 points) Suppose you are a parent shopping for a cereal for your teenager. In making the choice of which cereal you would prefer to have your child eat, you would want to compare their nutritional benefits. Referring specifically to Count Chocula and Quick Quaker Oats (p. 2), name 5 nutritional comparisons that might influence your decision, and which cereal "wins" each.

(a) ____

(b) ____

(c) ____

(d) ____

(e) ____

2. (5 points) Name 3 non-nutritional considerations that might also influence your decision:

(a) ____

(b) ____

(c) ____

3. (5 points) Which cereal is a better choice if you are on a tight food budget due to inflation?

____

Why? ____

4. (5 points) For each cereal, a serving size is 1 oz. (28 grams). The weight of protein + carbohydrate + fat for a serving in each case does not add up to 28 grams. What ingredient is not listed on either label that makes up the extra weight?

____

5. (5 points) The Count Chocula label says that one serving supplies you with 2 grams of protein, which is 2% of the U.S. R.D.A. This implies that the U.S. R.D.A. for protein is 100 grams.

The Quick Quaker Oats label says that one serving supplies you with 4 grams of protein, which is 6% of the U.S. R.D.A. This implies that the U.S. R.D.A. for protein is 67 grams.

Explain this difference: (Circle the best response.)

a) The protein is of different "quality" in the 2 cereals.

b) The U.S. R.D.A. for protein is different for all different foods.

c) The "grams" and "%" figures are rounded off.

d) All of the above.

6. (5 points) Neither label lists Vitamin E. This is because: (Circle the best response.)

a) Neither cereal contains significant levels of Vitamin E.

b) Vitamin E content is not required to be listed.

c) The symptoms of Vitamin E deficiency are not known.

d) Consumption of Vitamin E is a fad, and it is questionable whether the vitamin is necessary to health.

7. (5 points) The Ingredients sections of these labels list components of the cereals: (Circle the best response.)

a) Sources of carbohydrate first, sources of protein second, and sources of fat last.

b) Natural ingredients first, food additives and preservatives second, and vitamins and minerals last.

c) In a standard format determined by the Food and Drug Administration.

d) In order of weight, with the most plentiful component listed first.

==

On page 5, a table of Recommended Daily Allowances (R.D.A.'s) plus an entry from a book of food composition tables which describes the nutrient value of an egg are shown. This information may be of help in answering questions #8-11.

==

8. (5 points) Mr. Smith is a 50-year-old man who thinks that eggs are an almost "perfect" food. He eats them exclusively. How many large eggs does Mr. Smith require each day to supply his body with the energy he needs? (Circle the best response.)

   a) 3

   b) 11

   c) 31

   d) 110

9. (5 points) Assuming Mr. Smith eats enough eggs each day to supply all his energy needs, his perfect diet is deficient in the following vitamins and minerals: (Circle the best response.)

   a) Ascorbic acid, Iron, Magnesium

   b) Ascorbic acid, Iron, Niacin

   c) Ascorbic acid, Niacin, Magnesium

   d) Ascorbic acid, Niacin, Iron, Magnesium

10. (5 points) So, Mr. Smith takes a vitamin and mineral supplement every day, to make up these deficiencies. Has he neglected to consider any other necessary diet component(s) in his perfect diet? If so, what is it (or, what are they)?

____

____

11. (5 points) Does his perfect diet contain a large amount of any substance(s) which might be harmful to him? If so, what is it (or, what are they)?

____

____

R.D.A. Table

Designed for the maintenance of good nutrition of practically all healthy people in the U.S.A.

	(years) From Up to	Weight (lbs)	Height (in)	Energy (kcal)	Protein (g)	Fat-Soluble Vitamins: Vitamin A (IU)	Vitamin D (IU)	Vitamin E (IU)	Water-Soluble Vitamins: Ascorbic Acid (mg)	Folacin (µg)	Niacin (mg)	Riboflavin (mg)	Thiamin (mg)	Vitamin B$_6$ (mg)	Vitamin B$_{12}$ (µg)	Minerals: Calcium (mg)	Phosphorus (mg)	Iodine (µg)	Iron (mg)	Magnesium (mg)	Zinc (mg)
Males	11-14	97	63	2800	44	5,000	400	12	45	400	18	1.5	1.4	1.6	3.0	1200	1200	130	18	350	15
	15-18	134	69	3000	54	5,000	400	15	45	400	20	1.8	1.5	1.8	3.0	1200	1200	150	18	400	15
	19-22	147	69	3000	54	5,000	400	15	45	400	20	1.8	1.5	2.0	3.0	800	800	140	10	350	15
	23-50	154	69	2700	56	5,000		15	45	400	18	1.6	1.4	2.0	3.0	800	800	130	10	350	15
	51+	154	69	2400	56	5,000		15	45	400	16	1.5	1.2	2.0	3.0	800	800	110	10	350	15
Females	11-14	97	62	2400	44	4,000	400	10	45	400	16	1.3	1.2	1.6	3.0	1200	1200	115	18	300	15
	15-18	119	65	2100	48	4,000	400	11	45	400	14	1.4	1.1	2.0	3.0	1200	1200	115	18	300	15
	19-22	128	65	2100	46	4,000	400	12	45	400	14	1.4	1.1	2.0	3.0	800	800	100	18	300	15
	23-50	128	65	2000	46	4,000		12	45	400	13	1.2	1.0	2.0	3.0	800	800	100	18	300	15
	51+	128	65	1800	46	4,000		12	45	400	12	1.1	1.0	2.0	3.0	800	800	80	18	300	15

Nutrient Composition of Eggs

FOOD	WEIGHT (gm)	PROXIMATE: Calories	Protein (gm)	Carbohydrate (gm)	Fiber (gm)	Fat (gm)	Polyunsaturated Fatty Acids (gm)	MINERALS: Sodium (mg)	Potassium (mg)	Calcium (mg)	Magnesium (mg)	Phosphorus (mg)	Iron (mg)	VITAMINS: Thiamine (mg)	Riboflavin (mg)	Niacin (mg)	Ascorbic Acid (mg)	Vitamin A (I.U.)	Vitamin D (I.U.)
Egg, 1 large	54	88	7.0	.5	0	6.2	.5	66	70	29	6	110	1.2	.06	.16	.1	0	640	27

SCORING KEY
FOOD LABEL INFORMATION

* 1. (a) Quick Quaker Oats- more oats/serving
  (b) Quick Quaker Oats- less sugar/serving
  (c) tie- both have same Calories/serving
  (d) Quick Quaker Oats- more protein/serving
  (e) Count Chocula- more vitamins/serving

* 2. (a) convenience
  (b) taste
  (c) cost

* 3. Quick Quaker Oats
  lower cost/serving

4. water

5. c

6. b

7. d

8. c

9. c

10. water and/or fiber

11. cholesterol and/or fat

BIG IDEAS IN NUTRITION EDUCATION

TYPE OF MEASURE: Skill

OUTCOME ASSESSED: Analysis of Nutrition Information

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Big Ideas in Nutrition Education is a consumer program developed for use with adults. The program includes a workbook containing nine exercises. These exercises deal with classifying foods into food groups, determining serving sizes from each food group, analyzing daily food selections, determining cost per serving, and comparing food prices.

One exercise, Classifying Foods from Labels, presents labels from six hypothetical products (for example, frozen chicken pie or chicken chow mein). Each label lists the ingredients in the product. Individuals are asked to classify the first three foods listed on each label into one of five food groups, namely, milk group, meat group, vegetable-fruit group, bread-cereal group, and extra foods. A sample item is presented showing respondents how to record their answers.

TECHNICAL INFORMATION:

Two pilot tests and a field test of the program were conducted. In the pilot tests, individuals were trained with the program and materials were subsequently revised to incorporate modifications suggested by the pilot tests. A total of eight workshops were conducted in the field test; three were taught by instructors from the Dairy Council of California (DCC), five were taught by leaders trained by the DCC.

A total of 44 individuals completed the entire program. Mean posttest scores on a knowledge test were over 80% for both types of instructors, with mean pretest scores of 35% and below. The authors also report favorable attitudes towards the program from participants with either type of leader. Although the program was considered to be generally successful, selected revisions were made to enhance its effectiveness on the basis of the field test.

ADDITIONAL INFORMATION:

This measure is copyrighted. The measure and directions for use can be found in:

Dairy Council of California. Big ideas in nutrition education: Consumer program. Sacramento, Calif: Author, 1979.

The same agency also publishes other nutrition education programs for use in preschool, the primary grades, the intermediate grades, and junior high school, and for use with medical and dental patients.

NUTRITION OPINIONS (NUTRITION, DIET, AND HEART DISEASE)

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Belief in the Positive Effects of Maintaining a Healthy Diet

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Nutrition Opinions asks respondents to indicate the degree of their agreement with a series of statements regarding nutrition, diet, and heart disease. Individuals are to use a Likert-type scale where 1 = Strongly Disagree and 5 = Strongly Agree. The inventory contains 19 items and is composed of two subtests, one focusing on the general role of diet in heart disease and the other on dietary modifications. All statements are based on the recommendations released by Health and Welfare Canada as the Report of the Committee on Diet and Cardiovascular Disease.

The authors do not indicate how to score this measure but they do provide information about the scoring of an earlier version. They state that they sum the points for each response, reversing the points for negative statements (that is, a score of 1 represents strong disagreement with a positive attitude or strong agreement with a negative attitude; a score of 5 signifies strong agreement with a positive attitude or strong disagreement with a negative attitude.)

TECHNICAL INFORMATION:

This instrument was validated on a sample of 281 Canadian-born adult women. Internal consistency reliability coefficients were .73 and .67 for the attitude subtests. Cronbach's alpha for the composite was .82. Respondents' attitudes were generally positive, with mean scores on both subtests and the total measure reported to be around 83%, with standard deviations of 8 to 9%.

A preliminary form of this measure containing 26 items was administered to 76 individuals including faculty and graduate students in nutrition and laypersons. Selected items with negative or low item-subtest correlations were not included in the current version.

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ADDITIONAL INFORMATION:

Sullivan, A.D., & Schwartz, N.E. Attitudes, knowledge and practice related to diet, and cardiovascular disease. Journal of Canadian Dietetic Association, 1981, 42, 169-177.

Sullivan, A.D., & Schwartz, N.E. Assessment of attitudes and knowledge about diet and heart disease. Journal of Nutrition Education, 1981, 13(3), 106-108.

NUTRITION OPINIONS (NUTRITION, DIET, AND HEART DISEASE)

Some statements concerning nutrition, diet, and heart disease are made below. We are interested in your immediate reaction to these statements. Please circle the number which **best** indicates how closely you agree or disagree with the FEELIN expressed in each statement AS IT CONCERNS YOU. Circle:

1 if you STRONGLY DISAGREE with the statement
2 if you DISAGREE with the statement
3 if you are UNDECIDED, neither agree nor disagree
4 if you AGREE with the statement
5 if you STRONGLY AGREE with the statement

SAMPLE: The premier of British Columbia should call an election at this time. [✓ 1] 2 3 4 5

This person STRONGLY DISAGREES with the statement.

	STRONGLY DISAGREE	DISAGREE	UNDECIDED	AGREE	STRONG AGREE
1. I am concerned about the amount of salt in the foods that I buy.	1	2	3	4	5
2. With no signs of heart disease, I guess one is eating right.	1	2	3	4	5
3. It is the doctor's job to make me eat for heart health.	1	2	3	4	5
4. Once an adult, it is too late to protect your heart by changing your food habits.	1	2	3	4	5
5. There is too much emphasis on eating for the heart	1	2	3	4	5
6. As long as the doctor does not say that I should cut down the amount I eat, I do not need to be concerned.	1	2	3	4	5
7. What I eat will affect my heart.	1	2	3	4	5
8. Children should be taught proper food habits that will help prevent heart disease in later life.	1	2	3	4	5

Nutrition Opinions (Nutrition, Diet, and Heart Disease)
Page 2

	STRONGLY DISAGREE	DISAGREE	UNDECIDED	AGREE	STRONGLY AGREE
9. If I am careful I can cut down the amount of fat I eat.	1	2	3	4	5
10. As long as I eat properly, I can forget about exercising for my heart.	1	2	3	4	5
11. I am trying to eat for a healthy heart.	1	2	3	4	5
12. I feel it is impossible to change what I eat regardless of my heart health.	1	2	3	4	5
13. Since I can't control the amount of salt in packaged foods, I can't cut down on the amount of salt I eat.	1	2	3	4	5
14. I think people should be advised to change the type of fat they eat.	1	2	3	4	5
15. My eating habits influence my heart health.	1	2	3	4	5
16. If I pay attention to how my food is cooked, I can reduce the amount of fat I eat.	1	2	3	4	5
17. As long as I trim away the fat, I can eat all the meat I want.	1	2	3	4	5
18. People of all ages should be concerned about eating for a healthy heart.	1	2	3	4	5
19. I feel I should be concerned about the total amount of fat I eat.	1	2	3	4	5

PLEASE CHECK TO BE SURE ALL STATEMENTS HAVE BEEN ANSWERED

NUTRITION OPINIONS (NUTRITION AND EATING HABITS)

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Belief in the Positive Effects of Maintaining a Healthy Diet

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Nutrition Opinions represents one section of a longer attitudinal inventory designed to measure individuals' perceptions of the importance of nutrition. This section of the inventory consists of eleven statements reflecting attitude toward nutrition and eating habits. Individuals are to make two responses to each statement. First they are to circle "A" or "D" to show if they agree or disagree with a statement. Then they are to select a number from 1 (very confident) to 4 (very doubtful) to indicate the degree of certainty they possess about their answer.

TECHNICAL INFORMATION:

The total measure (30 items) was administered to 313 female high school graduates, along with a test of knowledge of nutritional concepts and a nutritional practices instrument. Significant correlations (actual coefficients not reported) were found between nutritional attitudes and knowledge) and between nutritional attitudes and practices.

AUTHOR: Nancy E. Schwartz
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ADDITIONAL INFORMATION:

Schwartz, N.E. Nutritional knowledge, attitudes, and practices of high school graduates. Journal of the American Dietetic Association, January 1975, 66, 28-31.

NUTRITION OPINIONS (NUTRITION AND EATING HABITS)

Some statements concerning nutrition and eating habits are made below. We are interested in your judgment of each statement, in terms of how well it reflects your personal opinion or feelings. If the statement describes how you feel, circle "A" for agree; if the statement does not describe how you feel, circle "D" for disagree. After you have made your decision, indicate how certain you are about the decision.

Circle: 1 if you are very confident about your decision (A or D)
2 if you are moderately confident about your decision
3 if you are moderately doubtful about your decision
4 if you are very doubtful about your decision

Please be sure to respond twice to each statement.

Sample: Nutrition is important to good health This opinion is agreement, with moderate confidence, that nutrition is important to good health.	[✓ A] D	1 [✓ 2] 3 4

	Agree or Disagree	Degree of Certainty	Disregard this Column
1. Since nutrition is important, I should not be careless about selection of foods.	A D	1 2 3 4	8
2. Foods have so many vitamins added now that I don't have to bother about nutrition.	A D	1 2 3 4	9
3. As long as I am not sick, I guess I must be eating right.	A D	1 2 3 4	10
4. Even if I take vitamins, I feel that I should be concerned about my diet.	A D	1 2 3 4	11
5. I feel that if I drink enough milk, I won't have nutritional problems.	A D	1 2 3 4	12
6. As long as the doctor doesn't say anything to me about nutrition, I don't think I need to be concerned.	A D	1 2 3 4	13
7. I just don't have time to think much about nutrition.	A D	1 2 3 4	14
8. Nutrition is not so important as long as I eat a lot.	A D	1 2 3 4	15
9. I am concerned about getting my family and friends to eat foods that are good for them.	A D	1 2 3 4	16
10. Children should be allowed to eat whatever they want.	A D	1 2 3 4	17
11. Nutrition is not so important if I have plenty of liquids.	A D	1 2 3 4	18

AN ATTITUDE SCALE

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Belief in Positive Effects of Maintaining a Healthy Diet

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

An Attitude Scale is designed to assess whether individuals believe that maintaining a well-balanced diet is important. The measure consists of 25 attitude statements such as, "I am not concerned about the number of calories in my diet," or "If a person does not eat properly, his health will deteriorate." Individuals are asked to read the items and select the options that best correspond with how they feel about the statements. Response options range from strongly agree to strongly disagree. A scoring key and interpretation guidelines are provided. Individuals' scores indicate how favorable their attitudes are toward nutrition.

TECHNICAL INFORMATION:

The scale was administered to almost 600 subjects, all graduates of Pennsylvania State University. An Alpha reliability coefficient was computed on their responses. The resulting Alpha coefficient was .85.

AUTHOR: Carol Byrd-Bredbenner, Ph.D.
Pennsylvania State University

ADDITIONAL INFORMATION:

Byrd-Bredbenner, C. The interrelationships of nutrition knowledge, attitudes toward nutrition, dietary behavior, and commitment to the concern for nutrition education. Unpublished doctoral dissertation, The Pennsylvania State University, 1980.

AN ATTITUDE SCALE

Read each item carefully. Select the alternative that corresponds best with how you feel about the statement and circle it.

CIRCLE

SA -- if you strongly agree with the statement
A -- if you agree but do not feel strongly about the statement
U -- if you are undecided or neither agree nor disagree
D -- if you disagree but do not feel strongly about the statement
SD -- if you strongly disagree with the statement

SA A U D SD 1. I try hard to keep up with the latest information concerning nutrition.

SA A U D SD 2. I am not concerned about the number of calories in my diet.

SA A U D SD 3. Restricting meal patterns to a few familiar foods insures that I will have a well balanced diet.

SA A U D SD 4. Knowing that a food is "good for me" has little influence on what I choose to eat.

SA A U D SD 5. I seldom think about my eating habits.

SA A U D SD 6. It is very important to me that I keep up with the latest nutrition information.

SA A U D SD 7. I frequently think about my eating habits.

SA A U D SD 8. I eat all courses of a meal even when I am not hungry.

SA A U D SD 9. I am too busy to concern myself with nutrition.

SA A U D SD 10. I try to encourage my family and friends to eat nutritious foods.

SA A U D SD 11. I stop eating only when I cannot eat any more.

SA A U D SD 12. I believe a proper diet aids in the prevention of some diseases.

SA A U D SD 13. If a person does not eat properly, his health will deteriorate.

SA A U D SD 14. As long as my weight stays the same, I do not need to think much about nutrition.

SA A U D SD 15. I am concerned about eating nutritious foods throughout the day.

SA A U D SD 16. Even though I take vitamins, I should be concerned about my diet.

SA A U D SD 17. As long as I am in good health, I must be eating right.

SA A U D SD 18. I am not concerned about eating nutritional foods throughout the day.

SA A U D SD 19. I believe no one should have a diet which is deficient in minerals and vitamins.

SA A U D SD 20. Since foods have so many vitamins added, I do not have to worry about nutrition.

SA A U D SD 21. I eat what I want regardless of what is good for me.

SA A U D SD 22. I believe that it is important to have a good breakfast.

SA A U D SD 23. I need not be concerned about my diet if I supplement it with synthetic vitamins.

SA A U D SD 24. I believe that a good breakfast is not important.

SA A U D SD 25. People are more likely to develop good food habits if exposed to a wide variety of foods.

INSTRUCTIONS FOR SCORING AN ATTITUDE SCALE

Scoring Procedure for Nutrition Attitude Scale

The attitude statements have five possible responses. The responses are assigned a score of one to five. The scoring takes the direction of the item into account (e.g., a score of five is assigned to "strongly agree" for positive attitude statements and to "strongly disagree" for negative attitude statements). The highest overall test score possible is 125; the lowest is 25.

Nutrition Attitude Scale Key

A score of 5 is assigned to the response listed next to the statement number. A score of 4, 3, 2, or 1 is assigned to other responses in a descending order or ascending order from the response receiving 5 points.

1. SA[1]
2. SD[1]
3. SD
4. SD
5. SD
6. SA
7. SA
8. SD
9. SD
10. SA
11. SD
12. SA
13. SA
14. SD
15. SA
16. SA
17. SD
18. SD
19. SA
20. SD
21. SD
22. SA
23. SD
24. SD
25. SA

Interpretation of Scores for the Nutrition Attitude Scale

A score of 100 - 125 indicates highly favorable attitudes toward nutrition.

A score of 75 - 99 indicates favorable attitudes toward nutrition.

A score of 50 - 74 indicates neither favorable nor unfavorable attitudes toward nutrition.

A score of 25 - 49 indicates unfavorable attitudes toward nutrition.

A score of 0 - 24 indicates highly unfavorable attitudes toward nutrition.

---

[1] SA = strongly agree; SD = strongly disagree.

FOOD PREFERENCE RECORD

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Acceptance of a Variety of Foods

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

The Food Preference Record is designed to assess willingness to consume a variety of foods. The measure is comprised of a list of various foods. Individuals are asked to indicate their preferences for these foods. Response options include, "not exposed to this food," "rejects this food," "tastes this food," "eats servings of this food," and "requests this food." The measure was originally administered to parents of preschool children to indicate the children's food preferences.

AUTHORS: Robert W. Clyde, Ph.D.
Augsburg College, Minneapolis, Minnesota

FOOD PREFERENCE RECORD

Child's Name: ______________________________

Date: ______________________________

Child Care Center: ______________________________

FOOD CHOICES

	Not exposed To This Food	1 Rejects This Food	2 Tastes This Food	3 Eats Servings Of This Food	4 Requests This Food
Cheese, American					
Cottage Cheese					
Milk					
Bacon					
Bolonga					
Chicken					
Eggs					
Frankfurter					
Meat Patty					
Peanut Butter					
Fish (fried)					
Tuna					
Apple					
Applesauce					
Banana					
Green Beans					
Broccoli					
Carrots (cooked)					
Carrots (raw)					
Cauliflower					
Corn					
Fruit Salad					
Lettuce					
Orange (including juice)					
Peaches					
Pears					
Peas					
Pineapple					
Potatoes					
Raisins					
Tomato (including juice)					
Baking Powder Biscuits					
White Bread					
Whole Wheat Bread					
Cornbread					
Dry Cereal					
Cooked Cereal					
Pancakes					
Toast					
Butter, Margarine					
Roll, hamb. frankfurter					
Baked Beans					
Beef Stew					
Chili					

HEALTH ATTITUDES

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Respect for One's Body

TARGET POPULATION: Adults or Adolescents

GENERAL DESCRIPTION:

Health Attitudes is designed to assess whether individuals are willing to engage in health practices that are indicative of respect for their bodies. Individuals are presented with 62 statements about exercise, nutrition, and stress, then asked whether they strongly agree, somewhat agree, slightly agree, slightly disagree, somewhat disagree, or strongly disagree with each statement. The inventory is comprised of statements such as, "It's hard for me to stick to a regular schedule of physical activity," or "The foods I eat are not as healthy as they could be." This measure is one in a series of health inventories used in the Stanford University Five-City Study, a community-based education project.

AUTHOR: Dr. William Haskell, et al
Stanford University Medical Center

HEALTH ATTITUDES

	Strongly Agree (AA)	Somewhat Agree (A)	Slightly Agree (a)	Slightly Disagree (d)	Somewhat Disagree (D)	Strongly Disagree (DD)	
	(1)	(2)	(3)	(4)	(5)	(6)	
1. The foods that I eat are not as healthy as they could be.	AA	A	a	d	D	DD	(58)
2. It's impossible for me to shut off my thoughts after a hectic day.	AA	A	a	d	D	DD	(59)
3. The amount of physical activity I now get is enough to keep me healthy.	AA	A	a	d	D	DD	(60)
4. I am more aware of my health now than I was a year ago.	AA	A	a	d	D	DD	(61)
5. People who weigh less have lower blood pressure.	AA	A	a	d	D	DD	(62)
6. I just can't keep myself from eating snacks between meals.	AA	A	a	d	D	DD	(63)
7. I would feel much better if I got more exercise.	AA	A	a	d	D	DD	(64)
☐ I feel I already exercise a sufficient amount.							
8. Even though I try, I can't seem to stay calm when annoying things happen.	AA	A	a	d	D	DD	(65)
9. Once you have high blood pressure, you're in for serious health problems unless you control it.	AA	A	a	d	D	DD	(66)
10. It's impossible for me to leave food on my plate.	AA	A	a	d	D	DD	(67)
11. If I decided to use a special relaxation method my family and friends would encourage me to do it.	AA	A	a	d	D	DD	(68)
12. Feeling good is not really related to how much you weigh.	AA	A	a	d	D	DD	(69)
13. I need to learn to feel more comfortable in tense situations.	AA	A	a	d	D	DD	(70)
14. It's hard for me to stick to a regular schedule of physical activity.	AA	A	a	d	D	DD	(71)
15. Most of the people around me are very careful to eat healthy foods.	AA	A	a	d	D	DD	(72)
16. I'm the kind of person who will never get enough exercise.	AA	A	a	d	D	DD	(73)
17. Foods low in salt are bland and uninteresting.	AA	A	a	d	D	DD	(74)
18. It is perfectly OK to gain weight as you get older.	AA	A	a	d	D	DD	(75)
19. I seem to worry about my health more than other people worry about theirs.	AA	A	a	d	D	DD	(76)

Health Attitudes
Page 2

	Strongly Agree (AA) (1)	Somewhat Agree (A) (2)	Slightly Agree (a) (3)	Slightly Disagree (d) (4)	Somewhat Disagree (D) (5)	Strongly Disagree (DD) (6)	
20. People who don't know how to relax are candidates for a heart attack or stroke.	AA	A	a	d	D	DD	(77
21. I just cannot resist eating sweet desserts.	AA	A	a	d	D	DD	(78
22. People who don't get regular physical activity are risking serious health problems.	AA	A	a	d	D	DD	(79
23. If I only ate things that were good for me, food would be boring.	AA	A	a	d	D	DD	(80
24. From now on I plan to relax more. ☐ I feel I already relax a sufficient amount.	AA	A	a	d	D	DD	(81
25. It is impossible for me to resist eating when I am around others who are eating.	AA	A	a	d	D	DD	(82
26. People who weigh less have a lower risk of heart disease.	AA	A	a	d	D	DD	(83
27. When I promise myself to change something about me that I don't like, I always do it.	AA	A	a	d	D	DD	(84
28. Eating healthy foods is very expensive.	AA	A	a	d	D	DD	(85
29. I would get along better with people if I didn't get so tense.	AA	A	a	d	D	DD	(86
30. I just can't do much about what I weigh.	AA	A	a	d	D	DD	(87
31. If I became a more relaxed person, my general health would probably not change.	AA	A	a	d	D	DD	(88
32. I worry more about my health now than I did a year ago.	AA	A	a	d	D	DD	(89
33. People who get easily frustrated have a greater risk of heart disease.	AA	A	a	d	D	DD	(90
34. If I decided to eat healthier foods, my family and friends would encourage me to do it.	AA	A	a	d	D	DD	(91
35. Finding enough time to relax is practically impossible for me.	AA	A	a	d	D	DD	(92
36. Even if I wanted to eat more nutritious foods, changing what I eat would cause my household too much trouble.	AA	A	a	d	D	DD	(93
37. I just can't get myself to walk short distances instead of driving.	AA	A	a	d	D	DD	(94
38. During the past year, I have been ill more often than usual.	AA	A	a	d	D	DD	(95

	Strongly Agree (AA) (1)	Somewhat Agree (A) (2)	Slightly Agree (a) (3)	Slightly Disagree (d) (4)	Somewhat Disagree (D) (5)	Strongly Disagree (DD) (6)	
39. I'd exercise more if I had someone to exercise with. ☐ I feel I already exercise a sufficient amount.	AA	A	a	d	D	DD	(96)
40. I ought to eat less red meat and eat more fish, poultry and vegetables. ☐ I eat no red meat.	AA	A	a	d	D	DD	(97)
41. Not getting enough exercise is a serious problem for me.	AA	A	a	d	D	DD	(98)
42. I have trouble keeping myself from eating a lot when I go out to eat.	AA	A	a	d	D	DD	(99)
43. It seems as though almost everything I really enjoy eating is bad for me.	AA	A	a	d	D	DD	(100)
44. I plan to find new ways to get more exercise soon. ☐ I feel I already exercise a sufficient amount.	AA	A	a	d	D	DD	(101)
45. A balanced diet which leads to weight-loss is bland and uninteresting.	AA	A	a	d	D	DD	(102)
46. My weight is a real problem for me.	AA	A	a	d	D	DD	(103)
47. There is not much I can do to keep from getting sick.	AA	A	a	d	D	DD	(104)
48. If I decided to get more physical activity I know I'd be able to stick to it.	AA	A	a	d	D	DD	(105)
49. I plan to eat healthier food soon. ☐ I feel I already eat sufficiently healthy food.	AA	A	a	d	D	DD	(106)
50. The way I handle stress is a serious problem for me.	AA	A	a	d	D	DD	(107)
51. I intend to begin a serious weight control program for myself soon. ☐ I am satisfied with my present weight.	AA	A	a	d	D	DD	(108)
52. It's hard to find the time in a day to get some exercise.	AA	A	a	d	D	DD	(109)
53. If I decided to eat healthier foods, I would probably be very successful in doing it.	AA	A	a	d	D	DD	(110)
54. It takes a great deal of physical activity to make any difference in your weight.	AA	A	a	d	D	DD	(111)
55. When I'm exercising or playing sports, I feel self-conscious about the way I look to others.	AA	A	a	d	D	DD	(112)

	Strongly Agree (AA) (1)	Somewhat Agree (A) (2)	Slightly Agree (a) (3)	Slightly Disagree (d) (4)	Somewhat Disagree (D) (5)	Strongly Disagree (DD) (6)	
56. I really need to lose some weight.	AA	A	a	d	D	.DD	(113)
57. I'm the kind of person who doesn't get enough exercise.	AA	A	a	d	D	DD	(114)
58. I feel powerless to prevent myself from eating when I am anxious or unhappy.	AA	A	a	d	D	DD	(115)
59. I'm going to have a regular schedule of physical activity soon.	AA	A	a	d	D	DD	(116)
☐ I already have a regular schedule of physical activity.							
60. It would be very difficult for me to change the kinds of foods I eat.	AA	A	a	d	D	DD	(117)
61. If I lost some weight I would feel much better.	AA	A	a	d	D	DD	(118)
☐ I am satisfied with my present weight.							
62. Soon I'm going to start eating less beef.	AA	A	a	d	D	DD	(119)
☐ I do not eat beef.							

1 (128)

CHAPTER SEVEN

TEST SPECIFICATIONS

This chapter contains the test specifications for all the newly-developed measures presented in Chapter Five. The specifications are arranged in the same order as that chapter's measures, with behavioral measures first, followed by knowledge, skill, and affective instruments.

Test specifications describe in detail both what an instrument is to measure and the manner in which the assessment is to be accomplished. Each set of test specifications begins with a General Description, which presents a brief overview of the scope and nature of the measure to be specified. A Sample Item follows, showing a typical item contained in the measure and the directions to respondents that accompany the instrument. The Stimulus Attributes section lists the rules that explain how the items for the measure are to be constructed. The Response Attributes section lists the rules that explain how the response options for the measure are to be constructed.

Many of the sets of specifications have one or more additional sections. A Technical Terms Supplement lists content-specific words which exceed the normal readability restrictions of a measure but which are used because of their importance and relevance. A Specifications Supplement, contained in all knowledge test specifications, presents an exhaustive listing of the content eligible for testing. Knowledge test specifications also contain a Bibliography which cites the references consulted in developing the content listing. Behavioral and affective test specifications include a Scoring and Interpretation section which explains the rationale and procedures to be used in evaluating the measure's data. Some affective test specifications also include a section entitled Measure Format which presents an item-by-item overview of the measure itself, highlighting the different variables represented by each item.

TEST SPECIFICATIONS

DAILY FOOD SURVEY

GENERAL DESCRIPTION

Individuals are asked to list their previous day's food intake and also to provide information about their current health status and any diet plan modifications they are following. The information gathered by the questionnaire can be used as a measure of how effectively a program has aided individuals in maintaining a healthy and nutritionally adequate diet.

SAMPLE ITEM

Use the Daily Food Record to list all foods you ate yesterday, including all beverages and snacks. Start with the first food of the day. Complete each column as described below. Refer to the examples on the Sample Record to see how to fill out the Daily Record.

WHAT DID YOU EAT OR DRINK?

In this column, list all the foods you ate and all the beverages you drank yesterday. As you can see in the Sample Record, some foods are single items, such as milk or an apple. In some cases, the foods are mixed items, such as a sandwich or a casserole.

Be as descriptive as possible when listing a food item, writing cheese sandwich or tuna casserole.

HOW MUCH?

As the Sample Record shows, in this column give the approximate amount of each food item listed in the WHAT DID YOU EAT column, such as 1 apple, 1 glass (8 ounces) milk, 6 ounces peanuts, 2 cups tuna casserole.

WHAT WAS IN IT?

In this column, give detailed descriptions of any mixed items listed in the WHAT DID YOU EAT OR DRINK column. List all the single foods contained in each as shown in the Sample Record. For example, if cheese sandwich is listed in the first column, then American cheese, wheat bread, butter, lettuce, and salt might be listed in this column.

If you don't know all the single foods in any mixed food, write down as many as you know, and write DON'T KNOW at the end of the list if you think that there were others. (See tuna casserole example in the Sample Record.)

HOW MUCH OF EACH?

In this column, give the approximate amount of each food listed in the WHAT WAS IN IT column. For example, the following amounts are listed for the cheese sandwich in the Sample Record: 1 ounce American cheese, 2 slices wheat bread, 1 tablespoon butter, 1/4 cup lettuce, dash salt.

If you do not know an amount, write DON'T KNOW in the column next to the food item you are unsure about. (See tuna casserole example in the Sample Record.)

ADDITIONAL INFORMATION

In this column, provide any additional information you can about each food's special characteristics, packaging, and preparation.

Special characteristics includes ways in which a food may be processed to change its nutritional value (e.g., non-fat, low sodium, enriched). Packaging describes the form in which a food is purchased (e.g., frozen, canned, dried). Preparation describes how a food is cooked (e.g., boiled, fried, baked).

Now, please use the Daily Food Record to list all of the foods you ate or drank yesterday. Use additional paper, if needed.

SAMPLE RECORD

WHAT DID YOU EAT OR DRINK?	HOW MUCH?	WHAT WAS IN IT?	HOW MUCH OF EACH?	ADDITIONAL INFORMATION
Cheese sandwich	1	American cheese	1 ounce	
		Wheat bread	2 slices	toasted
		Butter	1 tbsp.	
		Lettuce	1/4 cup	
		Salt	dash	
Potato chips	1 small bag (about 20 chips)			

WHAT DID YOU EAT OR DRINK?	HOW MUCH?	WHAT WAS IN IT?	HOW MUCH OF EACH?	ADDITIONAL INFORMATION
Apple	1			
Milk	1 glass (8 ounces)			low-fat
Peanuts	6 ounces			unsalted, dry roasted
Soft drink	1 can (12 ounces)	Orange soda		diet brand
Tuna casserole	2 cups	Tuna Macaroni Peas Cream sauce Don't know	3 ounces 1 cup 1/2 cup Don't know	canned in water boiled frozen

DAILY FOOD RECORD

WHAT DID YOU EAT OR DRINK?	HOW MUCH?	WHAT WAS IN IT?	HOW MUCH OF EACH?	ADDITIONAL INFORMATION

Please answer the following questions as accurately as you can.

Age __________ Height __________ Weight __________

STIMULUS ATTRIBUTES

The Daily Food Survey consists of two parts. The first part requires individuals to list all of the foods consumed during the previous day and provides a Sample Record to show how to complete the form. The second part requires individuals to provide information about their current health status and any special diet plans they are following.

PART I: Daily Food Record

1. Individuals are to list all foods eaten yesterday, including all beverages and snacks. They are to use the following five columns to record their intake:

WHAT DID YOU EAT OR DRINK?	HOW MUCH?	WHAT WAS IN IT?	HOW MUCH OF EACH?	ADDITIONAL INFORMATION

2. Respondents are to use the WHAT DID YOU EAT OR DRINK? column to indicate all single or mixed food items eaten during the previous day, being as descriptive as possible in listing those items.

3. Respondents are to use the HOW MUCH? column to indicate the approximate amount of each food listed in the WHAT DID YOU EAT OR DRINK? column.

4. Respondents are to use the WHAT WAS IN IT? column to indicate the single foods contained in any mixed food items listed in the WHAT DID YOU EAT OR DRINK? column.

5. Respondents are to use the HOW MUCH OF EACH? column to indicate the approximate amount of each single food listed in the WHAT WAS IN IT? column.

6. Respondents are to use the ADDITIONAL INFORMATION column to indicate processing, packaging, or preparation characteristics of each food listed in the WHAT DID YOU EAT OR DRINK? or WHAT WAS IN IT? columns.

PART II: Additional Questions

7. The following information will be elicited from all respondents:

   a. Age
   b. Height
   c. Weight
   d. Category for RDA classification (male, female, pregnant female, or nursing mother)

8. The following information will be elicited from all respondents to whom it applies:

   a. Special diet plans that are being followed (low salt, low fat, low cholesterol, low carbohydrate, low protein, low fiber, weight loss, weight gain, diabetic, or other).

   b. Foods to which the respondent is allergic.

   c. Conditions which affect what the respondent eats.

9. All portions of the Daily Food Survey will contain no words above the eighth grade level on the IOX Basic Skills Word List, unless those words are listed on the Technical Terms Supplement.

RESPONSE ATTRIBUTES

1. All items will be either open-ended or forced-choice.

2. Open-ended questions will be used to elicit respondents' daily intake, their age, height, weight, any foods to which they are allergic, and any conditions which affect what they eat.

3. Forced-choice questions will be used to elicit respondents' category membership for RDA classification and any special diet plans being followed.

INTERPRETATION

1. The responses to the questionnaire should permit program personnel to assess the current nutritional adequacy of each respondent's diet and of all respondents' diets as a group.

2. In order to assess nutritional adequacy, program personnel may use one or more of the analytic schemes listed below. In all instances, the adequacy of a respondent's daily intake should be considered in relation to that individual's age, height, weight, RDA category membership, and any special diet plans, food allergies, or other conditions.

3. One or more of the following analytic schemes can be used to evaluate questionnaire responses:

   a. Food Group Analysis - the foods listed can be classified according to a food group system. The actual number of servings per food group can then be compared with the recommended number of servings per food group. The Daily Food Guide Chart that follows can be used for this type of analysis.

   b. Nutrient Analysis - the foods listed can be classified according to their nutrient contribution to a healthy diet. Areas of deficiency can be noted. The Nutrient Source Table that follows can be used for this type of analysis.

   c. Dietary Guideline Analysis - the foods listed can be analyzed to determine compliance with the USDA Dietary Guidelines. The Dietary Guidelines Summary that follows can be used for this type of analysis.

   d. Calorie/Energy Analysis - the approximate calorie value of the foods listed can be calculated using food composition tables. Respondents' approximate caloric expenditure can be computed using a questionnaire such as the Energy Expenditure Index. Caloric intake can be compared with energy expenditure to determine whether the two are in an appropriate balance.

4. Program personnel may wish to clarify with respondents how to estimate and report the quantities and composition of the food items they list on their questionnaires, in order to ensure that the information being provided is as accurate as possible. Program personnel may also wish to direct respondents to complete the questionnaire for a typical day's intake (e.g., not a weekend or a holiday.)

TECHNICAL TERMS SUPPLEMENT

DAILY FOOD SURVEY

allergic
carbohydrate
cholesterol
diabetic
nutritional
pregnant
protein
sodium

DAILY FOOD GUIDE

FOOD GROUP	KEY NUTRIENT CONTRIBUTION	NUMBER OF DAILY SERVINGS	ONE SERVING*	REPRESENTATIVE SOURCES
Vegetable and Fruit	vitamin A vitamin C fiber folic acid (folacin) carbohydrate	4 servings	Vegetables 1 cup raw 1/2 cup cooked 1 average size vegetable (e.g., cucumber, tomato, carrot) Fruits 1 cup raw 1/2 cup juice 1 average size fruit (e.g., apple, pear, banana, orange)	Vegetable: artichoke, asparagus, bamboo shoots, beets, broccoli, cabbage, cactus, carrots, corn, dark green leafy vegetables, eggplant, green beans, green peas, peppers, potato, seaweed, sprouts, squash, sweet potato, tomato Fruits: apple, banana, berries, grapefruit kiwi, mango, melons, orange, papaya, peach, pear, pineapple
Bread and Cereal	carbohydrate thiamin niacin iron	4 servings	Breads 1 slice 1 piece (e.g., roll, muffin, biscuit 1/2 english muffin Pasta & Rice Products 1/2 cup cooked Cereals 1 ounce dry 1/2 cup cooked	Breads: bran, corn, enriched white, French, rye, wholegrain. Crackers, bun, biscuit, pretzel, bagel, tortilla Dry Cereals: bran, corn, oats, rice, wheat Cooked Cereals: buckwheat, corn, grits, oatmeal, rice, wheat Pasta: macaroni, noodles, spaghetti Rice: brown, white, wild
Milk and Milk Products	calcium protein riboflavin fat carbohydrate phosphorus magnesium	children - 3 servings teens - 4 servings adults - 2 servings pregnancy - 4 servings lactating - 4 servings	Milk 8 ounces (1 cup fluid) Cheese 1 1/3 ounces Other 1 1/2 cups cottage cheese 2 cups ice cream 1 cup yogurt	Milk: buttermilk, dry milk powder, low fat, non-fat (skim), whole Cheese: hard, soft; white, yellow; natural, processed Other: cottage cheese, ice cream, ice milk, yogurt
Meat and Meat Alternates	protein B vitamins iron fat zinc	2 servings	Meat, Poultry & Fish 3 ounces cooked Dry Beans & Peas 3/4 cup cooked Others 1/2 cup soybeans, lentils 1/4 cup shelled nuts, seeds 4 tablespoons nut butters 2 eggs 1/4 cup cooked tofu	Meat: beef, lamb, pork (including organs) Poultry: chicken, duck, turkey Fish and Shellfish: fresh, dried, canned Dried Beans and Peas: garbanzo, kidney, navy, pinto, black Others: lentils, nuts and nut butters, seeds, soybeans, eggs, tofu
Fats, Sweets and Alcohol	fat carbohydrate vitamin E	No recommendation. Consume in small quantities only after having enough servings from all other food groups and only if daily calorie allowance has not already been met.	No serving size established.	Fats: butter, margarine, vegetable oil, vegetable shortening, lard, salad dressing, mayonnaise, gravy, cream; snack chips (e.g., corn, potato); chitlings Sweets: sugar, syrup, honey, molasses, jam, jelly; cake, cookies, pie, doughnut, sweet roll, pastry; soft drinks, flavored gelatin Alcohol: liquor, liquer, beer, wine

* Servings note: Serving sizes for foods in each food group supply similar amounts of key nutrients but do not supply similar amounts of calories.

NUTRIENT SOURCE TABLE

NUTRIENT	REPRESENTATIVE SOURCES*
Protein	Beef, pork, lamb, fish, poultry, milk, yogurt, cheese, eggs, nuts, peanut butter, dried beans, dried peas, soybeans
Carbohydrate	Fruit, table sugar, candy, honey, bread, rice, cereal, pasta, potato, dried beans, dried peas, soybeans, nuts, seeds
Fat	Butter, margarine, vegetable shortening and oil, salad dressing, sauce, gravy, nuts, cream, frosting, fried foods, chitlings, potato chips, well-marbled meats, sausage, bacon, pork rind
Vitamin A	Yellow fruit, deep yellow, orange and dark green vegetables, plant greens, liver, eggs, fish, butter, margarine, cream, yellow cheese, ice cream
Vitamin D	Fortified milk, fortified milk products, fish liver oil. (Non-nutrient source: sunlight on skin)
Vitamin E	Vegetable shortening and oil, margarine, egg yolk, avocado, fatty snack foods
Vitamin C	Citrus fruit, citrus fruit juices, melon, strawberries, tomato, green pepper, cabbage, broccoli, greens, potato
Thiamin (B_1)	Whole grain and enriched breads and cereals, pork, beef, dried beans, dried peas, eggs, potato, broccoli, greens, tofu
Riboflavin (B_2)	Milk, cheese, yogurt, ice cream, liver, fish, poultry, eggs, enriched bread and cereal
Niacin	Liver, beef, pork, lamb, fish, poultry, eggs, nuts, milk, whole grain and enriched bread and cereal, peanut butter

NUTRIENT	REPRESENTATIVE SOURCES*
Pyridoxine (B_6)	Milk, fish, poultry, beef, pork, lamb
Folic Acid (Folacin)	Liver, leafy vegetables, fruit, milk, dried beans, dried peas
Vitamin B_{12}	Milk, milk products, beef, pork, lamb, fish, poultry, eggs
Calcium	Milk, cheese, yogurt, ice cream, whole canned fish, greens, tofu,
Magnesium	Milk, milk products
Iron	Beef, pork, lamb, liver, eggs, dried beans, dried peas, dried fruits, greens, whole grain and enriched bread and cereal, nuts
Zinc	Beef, pork, lamb, poultry, liver, eggs, fish
Iodine	Fish, iodized salt, liver

* Source: Selected to represent key nutrient composition in excess of calories and lesser nutrients per portion. Sources listed in order of decreasing nutrient concentration.

DIETARY GUIDELINES SUMMARY

1. About half (48%) of a person's recommended caloric intake should come from complex carbohydrates (i.e., vegetables, fruits, whole grains and cereals) and naturally-occuring sugars (i.e., sugars that are a part of a food, not added to it.)

2. Not more than 10% of a person's recommended caloric intake should come from refined and processed sugars.

3. About 30% of a person's recommended calorie intake should come from fats.

4. Saturated fats, polyunsaturated fats, and monounsaturated fats should each make up about 10% of a person's recommended caloric intake. (Saturated fats are usually obtained from animal sources such as meats and dairy products; unsaturated fats are obtained from plant sources such as corn.)

TEST SPECIFICATIONS
ENERGY EXPENDITURE INDEX

GENERAL DESCRIPTION

Individuals are asked about their daily activity and exercise patterns. This information, when used in conjunction with the information from a daily food intake measure such as the Daily Food Survey, can be used to determine how effectively a program has aided individuals in achieving an appropriate balance between energy intake and expenditure.

SAMPLE ITEM

Please answer the following questions as accurately as you can.

1. Which one of the following best describes the level of physical effort in your daily activities?

   ____ Light (such as office work, driving, sitting)

   ____ Medium (such as housework, carpentry, walking)

   ____ Heavy (such as pushing or carrying heavy objects)

STIMULUS ATTRIBUTES

1. An item will ask about one aspect of an individual's daily activity or exercise patterns.

2. Respondents will be asked to indicate the level of physical effort of their daily activities.

3. Respondents will be asked how many times per week they usually exercise; how strenuous, on average, their exercise sessions usually are; how long each exercise session usually lasts; and the types of activities they do for exercise.

4. Each question will be 15 words or less in length and will contain no words above an eighth grade level on the IOX Basic Skills Word List.

RESPONSE ATTRIBUTES

1. All items will be either forced-choice or open-ended.

2. Forced-choice items will require respondents to categorize their daily activities and their exercise sessions as either "light," "medium," or "heavy" activity.

3. Open-ended items will require respondents to indicate the number of times per week that they exercise, the length (in minutes) of each exercise session, and the types of activity they do for exercise.

INTERPRETATION

1. The responses to this questionnaire should allow program personnel to calculate the approximate daily calorie expenditure of each respondent. The additional information collected on the Daily Food Survey pertaining to the respondent's age, height, weight, and RDA classification should also be used in computing calorie expenditure.

2. Approximate energy intake can be calculated by using a food intake questionnaire such as the Daily Food Survey.

3. Comparisons between respondents' energy expenditure and their energy intake can allow program personnel to assess how well individuals or respondents as a group are balancing calorie intake and expenditure.

TEST SPECIFICATIONS

FACTS ABOUT FOOD

GENERAL DESCRIPTION

Individuals are presented with statements about food nutrients, the Recommended Dietary Allowances (RDA), food classification systems, dietary guidelines, and the effects of food preparation. Individuals indicate whether each statement is true or false.

SAMPLE ITEM

> **This test consists of 20 statements about foods and nutrients. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.**

TRUE FALSE

____ ____ 1. The body needs nutrients in order to build, repair, and maintain itself.

STIMULUS ATTRIBUTES

1. A test item will consist of a single-sentence statement that the child is to judge as true or false. This statement will contain information related to foods and nutrients.

2. All test items will be derived from the specifications supplement Facts about Food. This supplement presents statements about nutrition based upon either empirical evidence or expert consensus. The statements are organized into sections, with each section containing information about one aspect of foods and nutrients.

3. Each statement on the supplement consists of one main idea related to foods and nutrients. A statement either (a) describes the nature or effects of a particular subject, (b) compares two subjects with respect to a particular attribute, or (c) presents a correlational or causal relationship between two or more subjects.

4. A test item will be based on a single statement selected from the supplement. If the supplement statement contains multiple parallel elements, only one of the elements will be used in the test item.

   Example of a supplement statement with multiple parallel elements

   A person's RDA requirements will depend upon that individual's age, sex, and state of health.

5. A test item will present a supplement statement in either accurate or inaccurate form. An accurate test item can be created in one of the following two ways:

   a. Direct restatement: Reiterating a statement exactly as it appears on the supplement.

   b. Paraphrase: Rephrasing a supplement statement to communicate the same message in different words. This rephrasing may include substituting synonyms for words in the statement and/or reordering words within the statement. The quantitative portion of a supplement statement may not be paraphrased.

      Example of a test item created by paraphrase

      Supplement statement: The body needs nutrients in order to build, repair, and maintain itself.

      Test Item: In order to build, repair and keep itself, it is necessary that the body be provided with nutrients.

6. An inaccurate test item will be based on a supplement statement or a paraphrase of that statement. An inaccurate item can be created in one of the following two ways:

   a. Negation: Rewording a supplement statement to have the opposite meaning. If the statement is worded positively, negation is accomplished by adding a negative word or phrase to the statement. If the statement is worded negatively, negation is accomplished by taking out a negative word or phrase.

      Example of a test item created by negation

      Supplement statement: An extra supply of one nutrient cannot make up for a shortage of another one.

Test item: An extra supply of one nutrient can make up for a shortage of another one.

b. Mutual exclusivity: Transforming a supplement statement to communicate a message that is mutually exclusive with the original message. This transformation can be accomplished by either (1) changing a single verb, adjective, or adverb in the original statement to a word or phrase with a contradictory meaning, (2) changing a quantitative value to one that is different than the one given. A quantitative change must result in a new value that makes the original statement false, rather than a value that allows the statement to remain true because it represents a subset of the original statement. A quantitative change must be expressed in the same terms as the original value.

Examples of test items created by transformation to a mutually exclusive statement

Supplement statement: Saturated fats are usually solid at room temperature.

Test item: Saturated fats are usually liquid at room temperature.

Supplement statement: About half (48%) of a person's recommended calorie intake should come from complex carbohydrates and naturally occurring sugars.

Test item: Almost all of a person's recommended calorie intake should come from complex carbohydrates and naturally occurring sugars.

7. A test item will contain a maximum of 25 words. These words will be no higher than a fourth grade reading level on the IOX Basic Skills Word List. Technical terms not found on the word list may be used only if they are listed on the Technical Terms Supplement.

8. A test will contain an approximately equivalent number of accurate and inaccurate test items. These items will be selected according to the following procedures:

   a. One item will be randomly selected from each section of the supplement.

   b. The rest of the items will be randomly selected from the supplement as a whole.

   c. All of the items will be reviewed by content experts and modified as needed based upon this review.

9. All of the procedures for creating accurate and inaccurate test items will be used as equally as possible, with the exception of negation of a positively-stated supplement statement. This type of change will be used only when no other transformation is possible, as it results in a test item which requires the respondent to recognize that a negatively-stated idea is not accurate, in effect creating a double negative.

RESPONSE ATTRIBUTES

1. Two response columns will be provided. One column will be labeled "TRUE" and the other will be labeled "FALSE."

2. The correct answer to a question will be "TRUE" if the statement is accurate, or "FALSE" if the statement is inaccurate.

SPECIFICATIONS SUPPLEMENT

FACTS ABOUT FOOD

Nutrients and the RDA

1. The body needs nutrients in order to build, repair, and maintain itself.
2. There are six classes of nutrients: carbohydrate, fat, protein, vitamins, minerals, and water.
3. All nutrients are available from food.
4. A calorie is a unit of measurement that indicates the amount of energy provided by a food.
5. Carbohydrates, fats, and proteins contribute energy to a person's diet.
6. Vitamins, minerals, and water do not contribute energy to a person's diet.
7. Alcohol contributes calories to a person's diet, but adds few nutrients.
8. The Recommended Dietary Allowances (RDA) are the amounts of various nutrients that have been determined to be necessary in order to meet the needs of nearly all healthy individuals in the American population.
9. A person's RDA requirements will depend upon that individual's age, sex, and health status.
10. The RDA are reviewed and updated at regular intervals as better scientific information becomes available.
11. Most foods contain more than one nutrient.
12. No one food supplies all the nutrients that a person needs in order to meet the RDA standards.
13. A person needs to eat a variety of foods in order to meet the RDA standards.
14. All the nutrients a person needs can be found in commonly-eaten foods.
15. The greater the variety of foods a person eats, the less risk there is of developing an excess or a deficiency of any one nutrient.

16. An extra supply of one nutrient cannot make up for a shortage of another one.

17. The diets of most Americans supply the necessary amounts of the major vitamins and minerals.

18. For healthy individuals there are no known advantages to consuming any nutrient in amounts greater than that recommended by the RDA.

Systems for Classifying Foods

19. A person can plan a diet that meets the RDA standards either by selecting foods according to a food group system or by selecting foods according to their nutrient composition.

20. One common food group approach categorizes foods into the following five major categories: (a) fruits and vegetables, (b) breads and cereals, (c) milk and milk products, (d) meat and meat alternates, (e) fats, sweets and alcohol.

21. Food composition guides that list the nutrient content of various foods are available to help people plan their diets and analyze the foods they eat.

Dietary Guidelines - Carbohydrates

22. About half (48%) of a person's recommended calorie intake should come from complex carbohydrates and naturally occurring sugars.

23. Complex carbohydrates are found in vegetables, fruits, whole grains, and cereals.

24. Naturally occurring sugars are sugars that are a part of a food, not added to it.

25. Fiber, a family of complex carbohydrates which humans cannot digest, is important for maintaining regular bowel movements.

26. Foods that have a high fiber content include raw vegetables, raw fruits, whole grain and bran breads, whole wheat and bran cereals, brown rice, and seeds.

27. Foods that have a low fiber content include white, French, corn, and rye breads; crackers; biscuits; pretzels; bagels; tortillas; rice and corn cereals; pasta

products; milk; cheese; ice cream; all types of meats, poultry, fish, and shellfish; tofu; all fats (e.g., butter, salad dressing); all sweets (e.g., sugar, soft drinks); and all alcoholic beverages.

Dietary Guidelines - Sugar

28. Not more than 10% of a person's recommended calorie intake should come from refined and processed sugars.

29. Refined sugars are prepared from sugar cane and sugar beets.

30. Processed sugars include corn sugar, syrups, and molasses.

31. Foods that have a low sugar content include all raw vegetables; breads and cereals made without sugar; pasta products; rice; milk; (except flavored milk); cheese; meat; fish; shellfish; dried beans; and tofu.

32. Foods that have a high sugar content include fruits canned in heavy sugar syrup; breads and cereals made with large amounts of sugar; ice cream; ice milk; flavored yogurt; white, brown, and raw sugar; honey; syrup; molasses; jam; jelly; cake; cookies; pie; doughnuts; sweet rolls; pastry; soft drinks; flavored gelatin; candy; and liqueurs.

Dietary Guidelines - Fats

33. About 30% of a person's recommended calorie intake should come from fats.

34. Saturated fats and the two types of unsaturated fats (poly-unsaturated and mono-unsaturated fats) should each make up about 10% of a person's recommended calorie intake.

35. Saturated fats are fats which are usually obtained from animal sources such as meats and dairy products.

36. Saturated fats are usually solid at room temperature.

37. Unsaturated fats are fats which are obtained from plant sources such as corn (corn oil).

38. Unsaturated fats are usually liquid at room temperature.

39. Foods that have a low fat content include all vegetables and fruits (except avocado and olives); breads; cereals; pasta products; rice; non-fat milk; low fat cottage cheese; low fat yogurt; ice milk; chicken; turkey; fish; dried beans and peas; and tofu.

40. Foods that have a high fat content include butter; margarine; shortening; cooking oil; salad oil; coconut oil; baked goods such as cakes, cookies, and pies; fried foods; chocolate; mayonnaise; salad dressings; gravies; beef; lamb; pork; bacon; ham; sausage; duck; nuts; nut butters; seeds; chips; eggs; hard and soft cheeses; creamed cottage cheese; ice cream; whole milk; regular yogurt; avocado; and olives.

41. Cholesterol is a form of fat made by the body and found in animal sources such as egg yolk, meats and dairy products.

Dietary Guidelines - Salt

42. An average daily intake of over 5 grams of salt (2 grams sodium) may contribute to the development of high blood pressure in susceptible individuals.

43. People's daily requirement for salt will be met without adding salt to the food they cook or eat, as sodium occurs naturally in most foods and also is added in the processing of many foods.

44. Foods that have a low sodium content include fresh and frozen vegetables and fruits; breads and cereals made without salt; pasta; rice; whole, low fat, and non-fat milk; cottage cheese; ice cream; ice milk; yogurt; beef; lamb; pork; chicken; duck; turkey; dried beans and peas; and seeds.

45. Foods that have a high sodium content include canned vegetables; crackers; dry cereals; buttermilk; hard and soft cheeses and cheese spreads; organ meats; bacon; ham; sausage; cold cuts; hot dogs; fish and shellfish; tofu; salted nuts and nut butters; salad dressing; mayonnaise; gravy; pastry; mustard; catsup; pickles; soy sauce; and any foods which have visible salt such as pretzels and corn chips.

Effects of Food Selection and Preparation

46. Reading product labels will help a person determine the amounts of sugar, fat, and sodium in various foods.

47. Frying foods adds fat and may destroy some of the nutrients found in the food.

48. Foods which are baked or broiled do not increase in fat content, particularly their levels of vitamin C and some of the B vitamins.

49. Boiling most food items will reduce their nutrient content, particularly their levels of Vitamin C and some of the B vitamins.

50. Steaming foods such as vegetables prevents the loss of nutrients during preparation.

51. The liquid left after cooking vegetables should be kept and used to make soups, casseroles, etc., in order not to waste the nutrients in it.

52. Trimming excess fat off meat and removing the skin from chicken before cooking are important ways to reduce their fat content.

TECHNICAL TERMS SUPPLEMENT

FACTS ABOUT FOOD

avocado
bowel
calorie
carbohydrate
category
cholesterol
complex
deficiency
gelatin
intake
interval
margarine
mayonnaise
nutrient
nutrition
pasta
pretzel
protein
Recommended Dietary Allowances (RDA)
saturated
sodium
soy sauce
susceptible
thiamine
vitamin

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TEST SPECIFICATIONS

FOOD FACTS

GENERAL DESCRIPTION

Children are presented with statements about nutrients, the Recommended Dietary Allowances (RDA), and the dietary guidelines. Children indicate whether each statement is true or false.

SAMPLE ITEM

This test has 15 sentences. If the sentence is correct, put a check under the word TRUE. If the sentence is incorrect, put a check under the word FALSE.

TRUE	FALSE		
____	____	1.	The body needs nutrients in order to keep itself healthy.

STIMULUS ATTRIBUTES

1. A test item will consist of a single-sentence statement that the child is to judge as true or false. This statement will contain information related to foods and nutrients.

2. All test items will be derived from the specifications supplement Food Facts. This supplement presents statements about nutrition based upon either empirical evidence or expert consensus. The statements are organized into sections, with each section containing information about one aspect of foods and nutrients.

3. Each statement on the supplement consists of one main idea related to foods and nutrients. A statement either (a) describes the nature or effects of a particular subject, (b) compares two subjects with respect to a particular attribute, or (c) presents a correlational or causal relationship between two or more subjects.

4. A test item will be based on a single statement selected from the supplement. If the supplement statement contains multiple parallel elements, only one of the elements will be used in the test item.

Example of a supplement statement with multiple parallel elements

A person's RDA requirements will depend upon that person's age, sex, and state of health.

5. A test item will present a supplement statement in either accurate or inaccurate form. An accurate test item can be created in one of the following two ways:

   a. Direct restatement: Reiterating a statement exactly as it appears on the supplement.

   b. Paraphrase: Rephrasing a supplement statement to communicate the same message in different words. This rephrasing may include substituting synonyms for words in the statement and/or reordering words within the statement. The quantitative portion of a supplement statement may not be paraphrased.

      Example of a test item created by paraphrase

      Supplement statement: The body needs nutrients in order to build, repair, and keep itself healthy.

      Test item: In order to build, repair and keep itself healthy, it is necessary that the body receive nutrients.

6. An inaccurate test item will be based on a supplement statement or a paraphrase of that statement. An inaccurate item can be created in one of the following two ways:

   a. Negation: Rewording a supplement statement to have the opposite meaning. If the statement is worded positively, negation is accomplished by adding a negative word or phrase to the statement. If the statement is worded negatively, negation is accomplished by taking out a negative word or phrase.

      Example of a test item created by negation

      Supplement statement: Too much of one nutrient cannot make up for too little of another one.

      Test item: Too much of one nutrient can make up for too little of another one.

b. Mutual exclusivity: Transforming a supplement statement to communicate a message that is mutually exclusive with the original message. This transformation can be accomplished by either (1) changing a single verb, adjective, or adverb in the original statement to a word or phrase with a contradictory meaning, (2) changing a quantitative value to one that is different than the one given. A quantitative change must result in a new value that makes the original statement false, rather than a value that allows the statement to remain true because it represents a subset of the original statement. A quantitative change must be expressed in the same terms as the original value.

Examples of test items created by transformation to a mutually exclusive statement

Supplement statement: Most foods contain more than one nutrient.

Test item: Most foods contain only one nutrient.

Supplement statement: About one-half of a person's diet should come from complex carbohydrates and natural sugars.

Test item: About three-quarters of a person's diet should come from complex carbohydrates and natural sugars.

7. A test item will contain a maximum of 20 words. These words will be no higher than a fourth grade reading level on the IOX Basic Skills Word List. Technical terms not found on the word list may be used only if they are listed on the Technical Terms Supplement.

8. A test will contain an approximately equivalent number of accurate and inaccurate test items. These items will be selected according to the following procedures:

   a. One item will be randomly selected from each section of the supplement.

   b. The rest of the items will be randomly selected from the supplement as a whole.

   c. All of the items will be reviewed by content experts and modified as needed based upon this review.

9. All of the procedures for creating accurate and inaccurate test items will be used as equally as possible, with the exception of negation of a positively-stated supplement statement. This type of change will be used only when no other transformation is possible, as it results in a test item which requires the respondent to recognize that a negatively-stated idea is not accurate, in effect creating a double negative.

RESPONSE ATTRIBUTES

1. Two response columns will be provided. One column will be labeled "TRUE" and the other will be labeled "FALSE."

2. The correct answer to a question will be "TRUE" if the statement is accurate, or "FALSE" if the statement is inaccurate.

SPECIFICATIONS SUPPLEMENT

FOOD FACTS

Nutrients and the RDA

1. The body needs nutrients in order to build, repair, and keep itself healthy.

2. There are six kinds of nutrients: carbohydrate, fat, protein, vitamins, minerals, and water.

3. All nutrients can be found in food.

4. Calories measure the amount of energy you can get from a food.

5. Carbohydrates, fats, and proteins add energy to a person's diet.

6. Vitamins, minerals, and water do not add energy to a person's diet.

7. The Recommended Dietary Allowances (RDA) tell the amounts and kinds of nutrients that are necessary in order to meet the needs of nearly all healthy people.

8. A person's RDA requirements will depend upon that person's age, sex, and state of health.

9. The RDA's are changed regularly as better scientific information is learned.

10. Most foods contain more than one nutrient.

11. No one food supplies all the nutrients that a person needs in order to meet the RDA.

12. A person needs to eat different kinds of foods in order to meet the RDA.

13. All the nutrients a person needs can be found in commonly-eaten foods.

14. The more different kinds of foods a person eats, the less chance there is of getting too little or too much of any one nutrient.

15. Too much of one nutrient cannot make up for too little of another one.

Dietary Guidelines - Carbohydrates

16. About one-half of a person's diet should come from complex carbohydrates and natural sugars.

17. Complex carbohydrates are found in vegetables, fruits, whole grains, and cereals.

18. Natural sugars are sugars that are a part of a food, not added to it.

19. People should eat some foods that are high in fiber.

20. Foods that are high in fiber include raw vegetables, raw fruits, whole grain and bran breads, whole wheat and bran cereals, brown rice, and seeds.

Dietary Guidelines - Sugar

21. No more than 10 percent of a person's diet should come from refined sugars.

22. Foods that contain large amounts of refined sugar include fruits canned in heavy sugar syrup; breads and cereals made with large amounts of sugar; ice cream; ice milk; flavored yogurt; white, brown, and raw sugar; honey; syrup; molasses; jam; jelly; cake; cookies; pie; doughnuts; sweet rolls; pastry; soft drinks; flavored gelatin; and candy.

Dietary Guidelines - Fats

23. No more than 30 percent of a person's diet should come from fats.

24. Foods that contain large amounts of fat include butter; margarine; shortening, cooking oil; salad oil; coconut oil; baked goods such as cakes, cookies, and pies; fried foods; chocolate; mayonnaise; salad dressings; gravies; beef; lamb; pork; bacon; ham; sausage; duck; nuts; nut butters; seeds; eggs; hard and soft cheeses; creamed cottage cheese; ice cream; whole milk; regular yogurt; avocado; and olives.

Dietary Guidelines - Salt

25. Some people who eat many salty foods or put a large amount of salt on their food may develop high blood pressure.

26. People will get enough salt without adding salt to the food they cook or eat.

27. Foods that contain large amounts of salt include canned vegetables; crackers; pretzels; dry cereals; buttermilk; hard and soft cheeses and cheese spreads; bacon; ham; sausage; cold cuts; hot dogs; fish and shellfish; tofu; salted nuts and nut butters; salad dressing; mayonnaise; gravy; potato and corn chips; pastry; mustard; catsup; pickles; and soy sauce.

TECHNICAL TERMS SUPPLEMENT

FOOD FACTS

avocado
bran
calorie
carbohydrate
catsup
cracker
coconut
complex
diet
doughnut
energy
fiber
gelatin
gravy
ham
margarine
mayonnaise
mineral
molasses
mustard
nutrient
nutrition
olives
pastry
percent
pickle
pork
pretzel
protein
raw
Recommended Dietary Allowances (RDA)
refined
require
sausage
scientific
sex
shortening
sodium
soy sauce
syrup
tofu
vitamin
yogurt

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TEST SPECIFICATIONS

DAILY FOOD GUIDE

GENERAL DESCRIPTION

Individuals are presented with statements about representative sources, serving sizes, number of daily servings, and key nutrient contributions for each of five food groups. Individuals indicate whether each statement is true or false.

SAMPLE ITEM

> **This test consists of 20 statements about the food groups. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.**

TRUE	FALSE		
____	____	1.	Children should have five servings per day from the milk and milk products food group.

STIMULUS ATTRIBUTES

1. A test item will consist of a single-sentence statement that the individual is to judge as true or false. This statement will contain information related to representative sources, serving sizes, number of daily servings, or key nutrient contributions of one of five food groups.

2. All test items will be derived from the specifications supplement, Daily Food Guide. This table is based upon the Ninth Edition 1980 Recommended Dietary Allowances and the United States Department of Agriculture's Essentials of an Adequate Diet and Nutritive Value of American Foods in Common Units.

3. A test item will refer to one of the five food groups listed in the Daily Food Guide. The item will be based on the nutrient contribution, number of daily servings, serving size, or representative sources for the food group being tested. An item will present information in either accurate or inaccurate form.

4. A test item based on the nutrient contribution of a food group will take the following form: Foods in the (food group) have large amounts of (or contain) (specific nutrient).

   a. The accurate version of this type of test item will cite one of the key nutrients listed for a food group on the Daily Food Guide.

   b. The inaccurate version of this type of test item will cite a nutrient listed for one of the other food groups on the Daily Food Guide.

   Example of an accurate and inaccurate test item based on nutrient contribution of a food group

   Accurate item: Foods in the vegetable and fruit food group have large amounts of Vitamin C.

   Inaccurate item: Foods in the vegetable and fruit food group have large amounts of protein.

5. A test item based on the number of daily servings for a food group will take the following form: (Name of population) should have (number) servings per day from the (food group).

   a. The accurate version of this type of test item will cite the correct number of servings for the food group and a given population as listed on the Daily Food Guide.

   b. The inaccurate version of this type of test item will misrepresent the correct number of servings for a given population by at least one whole serving.

   Example of an accurate and inaccurate test item based on number of daily servings for a food group

   Accurate item: Individuals of all ages should have four servings per day from the bread and cereal food groups.

Inaccurate item: Individuals of all ages should have two servings per day from the bread and cereal food group.

6. Except where no serving size is established, a test item based on the serving size for a food group will take the following form: (specific amount of a type of food) equals one serving from the (food group).

   a. The accurate version of this type of test item will cite the correct size of a single serving for one type of food within a food group as listed on the Daily Food Guide.

   b. The inaccurate version of this type of test item will misrepresent the correct size of a single serving by at least one-half of a serving.

Example of an accurate and inaccurate test item based on serving size for a food group

Accurate item: One and one-half cups of cottage cheese equals one serving from the milk and milk products food group.

Inaccurate item: Two and one-half cups of cottage cheese equals one serving from the milk and milk products food group.

7. A test item based on representative sources for a food group will take the following form: (Name of food) is a food in the (food group).

   a. The accurate version of this type of test item will cite a food listed on the Daily Food Guide as a representative member of the food group.

   b. The inaccurate version of this type of test item will cite a food listed on the Daily Food Guide as a representative member of a food group other than the one named in the item.

Example of an accurate and inaccurate test item based on representative sources for a food group

Accurate item: Tofu is a food in the meat and meat alternates food group.

Inaccurate item: Lard is a food in the meat and meat alternates food group.

8. A test item will contain a maximum of 35 words. These words will be no higher than an eighth grade reading level on the IOX Basic Skills Word List. Technical terms not found on the word list may be used only if they are listed on the Technical Terms Supplement.

9. A test will contain an approximately equivalent number of accurate and inaccurate test items. A test will contain four questions for each food group, one each based on that group's nutrient contribution, number of daily servings, serving size, and representative sources.

RESPONSE ATTRIBUTES

1. Two response options will be provided. One column will be labeled "TRUE" and the other will be labeled "FALSE."

2. The correct answer to a question will be "TRUE" if the statement is accurate, or "FALSE" if the statement is inaccurate.

DAILY FOOD GUIDE

FOOD GROUP	KEY NUTRIENT CONTRIBUTION	NUMBER OF DAILY SERVINGS	ONE SERVING*	REPRESENTATIVE SOURCES
Vegetable and Fruit	vitamin A vitamin C fiber folic acid (folacin) carbohydrate	4 servings	Vegetables 1 cup raw 1/2 cup cooked 1 average size vegetable (e.g., cucumber, tomato, carrot) Fruits 1 cup raw 1/2 cup juice 1 average size fruit (e.g., apple, pear, banana, orange)	Vegetable: artichoke, asparagus, bamboo shoots, beets, broccoli, cabbage, cactus, carrots, corn, dark green leafy vegetables, eggplant, green beans, green peas, peppers, potato, seaweed, sprouts, squash, sweet potato, tomato Fruits: apple, banana, berries, grapefruit kiwi, mango, melons, orange, papaya, peach, pear, pineapple
Bread and Cereal	carbohydrate thiamin niacin iron	4 servings	Breads 1 slice 1 piece (e.g., roll, muffin, biscuit 1/2 english muffin Pasta & Rice Products 1/2 cup cooked Cereals 1 ounce dry 1/2 cup cooked	Breads: bran, corn, enriched white, French, rye, wholegrain. Crackers, bun, biscuit, pretzel, bagel, tortilla Dry Cereals: bran, corn, oats, rice, wheat Cooked Cereals: buckwheat, corn, grits, oatmeal, rice, wheat Pasta: macaroni, noodles, spaghetti Rice: brown, white, wild
Milk and Milk Products	calcium protein riboflavin fat carbohydrate phosphorus magnesium	children - 3 servings teens - 4 servings adults - 2 servings pregnancy - 4 servings lactating - 4 servings	Milk 8 ounces (1 cup fluid) Cheese 1 1/2 ounces Other 1 1/2 cups cottage cheese 2 cups ice cream 1 cup yogurt	Milk: buttermilk, dry milk powder, low fat, non-fat (skim), whole Cheese: hard, soft; white, yellow; natural, processed Other: cottage cheese, ice cream, ice milk, yogurt
Meat and Meat Alternates	protein B vitamins iron fat zinc	2 servings	Meat, Poultry & Fish 3 ounces cooked Dry Beans & Peas 3/4 cup cooked Others 1/2 cup soybeans, lentils 1/4 cup shelled nuts, seeds 4 tablespoons nut butters 2 eggs 1/4 cup cooked tofu	Meat: beef, lamb, pork (including organs) Poultry: chicken, duck, turkey Fish and Shellfish: fresh, dried, canned Dried Beans and Peas: garbanzo, kidney, navy, pinto, black Others: lentils, nuts and nut butters, seeds, soybeans, eggs, tofu
Fats, Sweets and Alcohol	fat carbohydrate vitamin E	No recommendation. Consume in small quantities only after having enough servings from all other food groups and only if daily calorie allowance has not already been met.	No serving size established.	Fats: butter, margarine, vegetable oil, vegetable shortening, lard, salad dressing, mayonnaise, gravy, cream; snack chips (e.g., corn, potato); chitlings Sweets: sugar, syrup, honey, molasses, jam, jelly; cake, cookies, pie, doughnut, sweet roll, pastry; soft drinks, flavored gelatin Alcohol: liquor, liquer, beer, wine

* Servings note: Serving sizes for foods in each food group supply similar amounts of key nutrients but do not supply similar amounts of calories.

TECHNICAL TERMS SUPPLEMENT
DAILY FOOD GUIDE

artichoke
asparagus
bagel
beer
bran
broccoli
calcium
calorie
carbohydrate
chitlings
fiber
folic acid (folacin)
garbanzo
grits
kiwi
lactating
lard
lentils
liqueur
magnesium
mango
margarine
mayonnaise
niacin
nutrient
papaya
pasta
phosphorus
pinto
pretzel
protein
riboflavin
shortening
soybeans
thiamin
tofu
tortilla
yogurt
zinc

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Committee on Dietary Allowances Food and Nutrition Board. Recommended dietary allowances (9th Rev. ed.). Washington, National Academy of Sciences, 1980.

McKee, G. (Ed.) Nutrition & the M.D., December 1981, 7(12).

U.S. Department of Agriculture. Essentials of an adequate diet. Washington, D.C.: Author, March 1956.

TEST SPECIFICATIONS

PLANNING WHAT YOU EAT

GENERAL DESCRIPTION

Children are presented with statements about representative sources, serving sizes, number of daily servings, and key nutrient contributions for each of five food groups. Children indicate whether each statement is true or false.

SAMPLE ITEM

> **This test has 20 sentences. If the sentence is correct, put a check under the word TRUE. If the sentence is incorrect, put a check under the word FALSE.**

TRUE	FALSE	
____	____	1. Children should have five servings per day from the milk and milk products food group.

STIMULUS ATTRIBUTES

1. A test item will consist of a single-sentence statement that the child is to judge as true or false. This statement will contain information related to representative sources, serving sizes, number of daily servings, or key nutrient contributions of one of five food groups.

2. All test items will be derived from the specifications supplement, Children's Daily Food Guide. This table is based upon the Ninth Edition 1980 Recommended Dietary Allowances and the United States Department of Agriculture's Essentials of an Adequate Diet and Nutritive Value of American Foods in Common Units.

3. A test item will refer to one of the five food groups listed in the Children's Daily Food Guide. The item will be based on the nutrient contribution, number of daily servings, serving size, or representative sources for the food group being tested. An item will present information in either accurate or inaccurate form.

4. A test item based on the nutrient contribution of a food group will take the following form: Foods from the (food group) have large amounts of (or contain) (specific nutrient).

   a. The accurate version of this type of test item will cite one of the key nutrients listed for a food group on the *Children's Daily Food Guide*.

   b. The inaccurate version of this type of test item will cite a nutrient listed for one of the other food groups on the *Children's Daily Food Guide*.

   Example of an accurate and inaccurate test item based on nutrient contribution of a food group

   Accurate item: Foods from the vegetable and fruit food group have large amounts of Vitamin C.

   Inaccurate item: Foods from the vegetable and fruit food group have large amounts of protein.

5. A test item based on the number of daily servings for a food group will take the following form: Children should have (number) servings each day from the (food group).

   a. The accurate version of this type of test item will cite the correct number of servings for the food group as listed on the *Children's Daily Food Guide*.

   b. The inaccurate version of this type of test item will misrepresent the correct number of servings by at least one whole serving.

   Example of an accurate and inaccurate test item based on number of daily servings for a food group

   Accurate item: Children should have four servings each day from the bread and cereal food group.

   Inaccurate item: Children should have two servings each day from the bread and cereal food group.

6. Except where no serving size is established, a test item based on the serving size for a food group will take the following form: (specific amount of a type of food) is one serving from the (food group).

   a. The accurate version of this type of test item will cite the correct size of a single serving for one type of food within a food group as listed on the *Children's Daily Food Guide*.

b. The inaccurate version of this type of test item will misrepresent the correct size of a single serving by at least one-half a serving.

Example of an accurate and inaccurate test item based on serving size for a food group

Accurate item: One and one-half cups of cottage cheese is one serving from the milk and milk products food group.

Inaccurate item: Two and one-half cups of cottage cheese is one serving from the milk and milk products food group.

7. A test item based on representative sources for a food group will take the following form: (Name of food) is a food from the (food group).

   a. The accurate version of this type of test item will cite a food listed on the Children's Daily Food Guide as a representative member of the food group.

   b. The inaccurate version of this type of test item will cite a food listed on the Children's Daily Food Guide as a representative member of a food group other than the one named in the item.

Example of an accurate and inaccurate test item based on representative sources for a food group

Accurate item: Tofu is a food from the meat and meat alternates food group.

Inaccurate item: Yogurt is a food from the meat and meat alternates food group.

8. A test item will contain a maximum of 25 words. These words will be no higher than a fourth grade reading level on the IOX Basic Skills Word List. Technical terms not found on the word list may be used only if they are listed on the Technical Terms Supplement.

9. A test will contain an approximately equivalent number of accurate and inaccurate test items. A test will contain four questions for each food group, one each based on that group's nutrient contribution, number of daily servings, serving size, and representative sources.

9. A test will contain an approximately equivalent number of accurate and inaccurate test items. A test will contain four questions for each food group, one each based on that group's nutrient contribution, number of daily servings, serving size, and representative sources.

RESPONSE ATTRIBUTES

1. Two response options will be provided. One column will be labeled "TRUE" and the other will be labeled "FALSE."
2. The correct answer to a question will be "TRUE" if the statement is accurate, or "FALSE" if the statement is inaccurate.

CHILDREN'S DAILY FOOD GUIDE

FOOD GROUP	KEY NUTRIENT CONTRIBUTION	NUMBER OF DAILY SERVINGS	ONE SERVING*	REPRESENTATIVE SOURCES
Vegetable and Fruit	vitamin A vitamin C fiber folic acid (folacin) carbohydrate	4 servings	Vegetables 1 cup raw 1/2 cup cooked 1 average size vegetable (e.g., cucumber, tomato, carrot) Fruits 1 cup raw 1/2 cup juice 1 average size fruit (e.g., apple, pear, banana, orange)	Vegetables: artichoke, asparagus, bamboo shoots, beets, broccoli, cabbage, cactus, carrot, corn, dark green leafy vegetables, eggplant, green beans, green peas, peppers, potato, seawood, sprouts, squash, sweet potato, tomato Fruits: apple, banana, berries, grapefruit, kiwi, mango, melons, orange, papaya, peach, pear, pineapple
Bread and Cereal	carbohydrate thiamin niacin iron	4 servings	Breads 1 slice 1 piece (e.g., roll, muffin, biscuit) 1/2 english muffin Pasta & Rice Products 1/2 cup cooked Cereals 1 ounce dry 1/2 cup cooked	Breads: bran, corn, enriched white, French, rye, wholegrain. Crackers, bun, biscuit, pretzel, bagel, tortilla Dry Cereals: bran, corn, oats, rice, wheat Cooked Cereals: buckwheat, corn, grits, oatmeal, rice, wheat Pasta: macaroni, noodles, spaghetti Rice: brown, white wild
Milk and Milk Products	calcium protein riboflavin fat carbohydrate phosphorus magnesium	3 servings	Milk 8 ounces (1 cup fluid) Cheese 1 1/3 ounces Other 1 1/2 cups cottage cheese 2 cups ice cream 1 cup yogurt	Milk: buttermilk, dry milk powder, low fat, non-fat (skim), whole Cheese: hard, soft; white, yellow; natural, processed Other: cottage cheese, ice cream, ice milk, yogurt
Meat and Meat Alternates	protein B vitamins iron fat zinc	2 servings	Meat, Poultry, & Fish 3 ounces cooked Dry Beans & Peas 3/4 cup cooked Others 1/2 cup soybeans, lentils 1/4 cup shelled nuts, seeds 4 tablespoons nut butters 2 eggs 1/4 cup cooked tofu	Meat: beef, lamb, pork (including organs) Poultry: chicken, duck, turkey Fish and Shellfish: fresh, dried, canned Dried Beans and Peas: garbanzo, kidney, navy, pinto, black Others: lentils, nuts and nut butters, seeds, soybeans, eggs, tofu
Fats and Sweets	fat carbohydrate vitamin E	Eat in small amounts and only after having enough servings from all the other food groups.	No serving size established.	Fats: butter, margarine, vegetable oil, vegetable shortening, lard, salad dressing, mayonnaise, gravy, cream; snack chips (e.g., corn, potato); chitlings Sweets: sugar, syrup, honey, molasses, jam, jelly; cake, cookies, pie, doughnut, sweet roll, pastry; soft drinks, flavored gelatin

*Serving note: Serving sizes for foods in each food group supply about the same amounts of key nutrients but do not supply the same amounts of calories.

TECHNICAL TERMS SUPPLEMENT

PLANNING WHAT YOU EAT

alternate
artichoke
asparagus
average
avocado
bagel
beets
biscuits
bran
broccoli
cactus
calcium
calorie
carbohydrate
cereal
chitlings
cracker
doughnut
eggplant
enriched
fiber
folic acid (folacin)
fluid
garbanzo
gelatin
grapefruit
grits
kiwi
lard
lentils
macaroni
magnesium
mango
margarine
mayonnaise
melon
molasses
natural
niacin
non-fat (skim)
noodle
nutrient
ounce
papaya
pasta
pastry
phosphorous
pineapple
pinto
pork
poultry
pretzel
processed
product
protein
raw
riboflavin
rye
seaweed
shortening
slice
soybeans
spaghetti
sprouts
syrup
thiamin
tofu
tortilla
vitamin
yogurt
zinc

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Adams, C.F. Nutritive value of American foods. (Agriculture Handbook No. 456). Washington, D.C.: U.S. Department of Agriculture, November 1975.

Committee on Dietary Allowances Food and Nutrition Board. Recommended dietary allowances. Washington, D.C.: National Academy of Sciences, 1980.

McKee, G. (Ed.) Nutrition & the M.D., December 1981, 7(12).

U.S. Department of Agriculture. Essentials of an adequate diet. Washington, D.C.: Author, March 1956.

TEST SPECIFICATIONS
NUTRIENT SOURCES

GENERAL DESCRIPTION

Individuals are presented with statements about representative sources for nutrients listed in the Recommended Dietary Allowances. Individuals indicate whether each statement is true or false.

SAMPLE ITEM

> **This test consists of 20 statements about foods and nutrients. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.**

TRUE	FALSE	
____	____	1. Soybeans are a good source of fat.

STIMULUS ATTRIBUTES

1. A test item will consist of a single-sentence statement that the individual is to judge as true or false. This statement will indicate a representative source for one nutrient listed in the Recommended Dietary Allowances.

2. All test items will be derived from the specifications supplement Nutrient Source Table. This table is based upon the Ninth Edition 1980 Recommended Dietary Allowances and the United States Department of Agriculture Nutritive Value of American Foods In Common Units.

3. A test item will indicate a representative source for a nutrient. An item will present information in either accurate or inaccurate form.

4. A test item will take the following form: (Name of a food) (is/are) a good source of (specific nutrient).

   a. The accurate version of a test item will cite a food listed on the Nutrient Source Table as a representative source of the given nutrient.

b. The inaccurate version of a test item will cite a food listed on the Nutrient Source Table as a representative source of a nutrient other than the one named in the item.

Examples of accurate and inaccurate test items based on representative nutrient sources

Accurate item: Fortified milk is a good source of Vitamin D.

Inaccurate item: Peanut butter is a good source of Vitamin D.

5. Any food listed on the Nutrient Source Table will be used only once in a set of test items.

6. A test item will contain a maximum of 25 words. These words will be no higher than an eighth grade reading level on the IOX Basic Skills Word List. Technical terms not found on the word list may be used only if they are listed on the Technical Terms Supplement.

7. A test will contain an approximately equivalent number of accurate and inaccurate test items. These items will be selected from the eighteen nutrient categories. Each nutrient category will be presented at least once.

RESPONSE ATTRIBUTES

1. Two response columns will be provided. One column will be labeled "TRUE" and the other will be labeled "FALSE."

2. The correct answer to a question will be "TRUE" if the statement is accurate, or "FALSE" if the statement is inaccurate.

NUTRIENT SOURCE TABLE

NUTRIENT	REPRESENTATIVE SOURCES*
Protein	Beef, pork, lamb, fish, poultry, milk, yogurt, cheese, eggs, nuts, peanut butter, dried beans, dried peas, soybeans
Carbohydrate	Fruit, table sugar, candy, honey, bread, rice, cereal, pasta, potato, dried beans, dried peas, soybeans, nuts, seeds
Fat	Butter, margarine, vegetable shortening and oil, salad dressing, sauce, gravy, nuts, cream, frosting, fried foods, chitlings, potato chips, well-marbled meats, sausage, bacon, pork rind
Vitamin A	Yellow fruit, deep yellow, orange and dark green vegetables, plant greens, liver, eggs, fish, butter, margarine, cream, yellow cheese, ice cream
Vitamin D	Fortified milk, fortified milk products, fish liver oil. (Non-nutrient source: sunlight on skin)
Vitamin E	Vegetable shortening and oil, margarine, egg yolk, avocado, fatty snack foods
Vitamin C	Citrus fruit, citrus fruit juices, melon, strawberries, tomato, green pepper, cabbage, broccoli, greens, potato
Thiamin (B_1)	Whole grain and enriched breads and cereals, pork, beef, dried beans, dried peas, eggs, potato, broccoli, greens, tofu
Riboflavin (B_2)	Milk, cheese, yogurt, ice cream, liver, fish, poultry, eggs, enriched bread and cereal
Niacin	Liver, beef, pork, lamb, fish, poultry, eggs, nuts, milk, whole grain and enriched bread and cereal, peanut butter

NUTRIENT	REPRESENTATIVE SOURCES*
Pyridoxine (B_6)	Milk, fish, poultry, beef, pork, lamb
Folic Acid (Folacin)	Liver, leafy vegetables, fruit, milk, dried beans, dried peas
Vitamin B_{12}	Milk, milk products, beef, pork, lamb, fish, poultry, eggs
Calcium	Milk, cheese, yogurt, ice cream, whole canned fish, greens, tofu,
Magnesium	Milk, milk products
Iron	Beef, pork, lamb, liver, eggs, dried beans, dried peas, dried fruits, greens, whole grain and enriched bread and cereal, nuts
Zinc	Beef, pork, lamb, poultry, liver, eggs, fish
Iodine	Fish, iodized salt, liver

* Source: Selected to represent key nutrient composition in excess of calories and lesser nutrients per portion. Sources listed in order of decreasing nutrient concentration.

TECHNICAL TERMS SUPPLEMENT

NUTRIENT SOURCES

- avocado
- broccoli
- calorie
- carbohydrate
- chitlings
- citrus
- fiber
- folic acid (folacin)
- iodine
- magnesium
- margarine
- niacin
- nutrient
- pasta
- protein
- pyridoxine
- riboflavin
- shortening
- soybeans
- thiamin
- tofu
- yogurt
- zinc

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Committee on Dietary Allowances Food and Nutrition Board. Recommended dietary allowances. Washington, D.C.: National Academy of Sciences, 1980.

TEST SPECIFICATIONS

NUTRITION AND HEALTH

GENERAL DESCRIPTION

Individuals are presented with statements about health consequences related to nutrition. Individuals indicate whether each statement is true or false.

SAMPLE ITEM

This test consists of 20 statements about nutrition. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.

TRUE	FALSE		
____	____	1.	Excess weight is the most common nutritional problem in the United States.

STIMULUS ATTRIBUTES

1. A test item will consist of a single-sentence statement that the individual is to judge as true or false. This statement will contain information related to a health consequence of nutrition.

2. All test items will be derived from the specifications supplement Nutrition and Health. This supplement presents statements about nutrition based upon either empirical evidence or expert consensus. The statements are organized into sections, with each section containing information about one aspect of nutrition and health.

3. Each statement on the supplement consists of one main idea related to nutrition and health. A statement either (a) describes the nature or effects of a particular subject, (b) compares two subjects with respect to a particular attribute, or (c) presents a correlational or causal relationship between two or more subjects.

4. A test item will be based on a single statement selected from the supplement. If the supplement statement contains multiple parallel elements, only one of the elements will be used in the test item.

   Example of a supplement statement with multiple parallel elements

   Individuals with high blood pressure are at increased risk of death or illness from heart attack, heart failure, stroke, and kidney failure.

5. A test item will present a supplement statement in either accurate or inaccurate form. An accurate test item can be created in one of the following two ways:

   a. Direct restatement: Reiterating a statement exactly as it appears on the supplement.

   b. Paraphrase: Rephrasing a supplement statement to communicate the same message in different words. This rephrasing may include substituting synonyms for words in the statement and/or reordering words within the statement. The quantitative portion of a supplement statement may not be paraphrased.

      Example of a test item created by paraphrase

      Supplement statement: Alcohol consumption by pregnant women may cause birth defects.

      Test item: Birth defects may result from drinking alcohol during pregnancy.

6. An inaccurate test item will be based on a supplement statement or a paraphrase of that statement. An inaccurate item can be created in one of the following three ways:

   a. Negation: Rewording a supplement statement to have the opposite meaning. If the statement is worded positively, negation is accomplished by adding a negative word or phrase to the statement. If the statement is worded negatively, negation is accomplished by taking out a negative word or phrase.

      Example of a test item created by negation

      Supplement statement: In most cases, the nutrient level in the RDA (Recommended Dietary Allowances) is adequate to meet the ordinary stresses of daily living.

Test item: In most cases, the nutrient level in the RDA (Recommended Dietary Allowances) is inadequate to meet the ordinary stresses of daily living.

b. Mutual exclusivity: Transforming a supplement statement to communicate a message that is mutually exclusive with the original message. This transformation can be accomplished by either (1) changing a single verb, adjective, or adverb in the original statement to a word or phrase with a contradictory meaning, (2) changing a comparative statement to either reverse the direction of the comparison made or make both terms being compared equal, or (3) changing a quantitative value to one that is different than the one given. A quantitative change must result in a new value that makes the original statement false, rather than a value that allows the statement to remain true because it represents a subset of the original statement. A quantitative change must be expressed in the same terms as the original value.

Examples of test items created by transformation to a mutually exclusive statement

Supplement statement: A person who consumes more calories than are used in physical activity will gain weight.

Test item: A person who consumes fewer calories than are used in physical activity will gain weight.

Supplement statement: About 15 percent of the population in the United States has high blood pressure.

Test item: About 35 percent of the population in the United States has high blood pressure.

c. Substitution: Naming one nutrient and then making a statement about the function of another nutrient.

Example of a test item created by substitution

Supplement statement: Fat provides concentrated energy.

Test item: Vitamin C provides concentrated energy.

7. A test item will contain a maximum of 25 words. These words will be no higher than an eighth grade reading level on the IOX Basic Skills Word List. Technical terms not found on the word list may be used only if they are listed on the Technical Terms Supplement.

8. A test will contain an approximately equivalent number of accurate and inaccurate test items. These items will be selected according to the following procedures:

   a. One item will be randomly selected from each section of the supplement.

   b. The rest of the items will be randomly selected from the supplement as a whole.

   c. All of the items will be reviewed by content experts and modified as needed based upon this review.

9. All of the procedures for creating accurate and inaccurate test items will be used as equally as possible, with the exception of negation of a positively-stated supplement statement. This type of change will be used only when no other transformation is possible, as it results in a test item which requires the respondent to recognize that a negatively-stated idea is not accurate, in effect creating a double negative.

RESPONSE ATTRIBUTES

1. Two response columns will be provided. One column will be labeled "TRUE" and the other will be labeled "FALSE."

2. The correct answer to a question will be "TRUE" if the statement is accurate, or "FALSE" if the statement is inaccurate.

SPECIFICATIONS SUPPLEMENT

NUTRITION AND HEALTH

Functions of Key Nutrients

1. Nutrients are substances in food that are used by the body to grow and to repair itself.

2. The 50 known nutrients found in food can be grouped into six categories.

3. The six categories of nutrients in food are protein, carbohydrate, fat, vitamins, minerals, and water.

4. Protein is needed to build, maintain, and repair body tissues; to make hemoglobin which carries oxygen to the cells; to form antibodies in the bloodstream that fight off infection and disease; to produce enzymes and hormones that regulate body processes.

5. Carbohydrate provides quick energy and allows the body to use protein for body growth and repair rather than to meet energy needs.

6. Fat provides concentrated energy, carries essential vitamins, and helps keep skin and hair healthy.

7. Vitamin A promotes good vision, resistance to infection, healthy skin and hair, bone growth, and healthy tooth structure.

8. The B vitamins are important for healthy nerve tissue, digestion, and absorption of foods.

9. The B vitamins include thiamin, riboflavin, and niacin.

10. Vitamin C promotes the growth and repair of body tissues and healthy gums and blood vessels.

11. Vitamin D helps the bones absorb calcium.

12. Minerals work in skeletal cells, muscle, and nerve tissue and regulate body processes.

13. Minerals include calcium, phosphorus, iodine, iron, fluoride, magnesium, and zinc.

14. Fluoride helps strengthen the teeth, thereby decreasing the likelihood of tooth decay.

15. Iron carries oxygen in the blood to the cells of the body.

16. Calcium helps build bones and teeth, helps control muscle contraction, including the heartbeat, and helps control blood clotting.

17. Water helps dissolve the other nutrients so they can pass from the digestive tract into the bloodstream, constitutes the liquid part of the bloodstream, carries waste from the body, and helps regulate body temperature.

Diet and Health

18. Six of the ten leading causes of death in the United States (heart attack, stroke, arteriosclerosis, cancer, cirrhosis of the liver, and diabetes) are linked at least in part to diet.

19. Individuals who consume too many calories, too much fat, too much cholesterol, too much sugar, too much salt, too much alcohol, too little fiber, or too little vitamins and minerals may increase their risk of developing diseases.

20. The likelihood of getting colds and other illnesses increases when the diet is inadequate.

21. At present, there are no known foods or nutrients that will prevent or cure cancer in people.

22. In most cases, the nutrient level in the RDA (Recommended Dietary Allowances) is adequate to meet the ordinary stresses of daily living.

The Effects of Excess Calories

23. A person who consumes more calories than are used in physical activity will gain weight.

24. Excess weight is the most common nutritional problem in the United States.

25. Individuals are considered obese if they are more than 20% above their desirable weight and have excessive amounts of body fat.

26. Although estimates vary, about 15-30% of American adults are considered obese.

27. Excess weight can shorten life by contributing to the development of high blood pressure, cardiovascular disease, diabetes, and gall bladder disease.

28. The health risks associated with being overweight decrease when a desirable weight is reached and maintained.

The Effects of Excess Fat

29. Too much fat in the diet is associated with cardiovascular disease and obesity.

The Effects of Excess Sugar

30. The major health hazards from eating too much sugar are tooth decay (dental caries), and gum disease.

31. The risk of caries increases the more frequently a person eats sugar and sweets, especially if the sweet foods stick to the teeth and/or are eaten between meals.

The Effects of Excess Salt

32. High salt intake is associated with high blood pressure in susceptible people.

33. About 15 percent of the population in the United States has high blood pressure.

34. Individuals with high blood pressure are at increased risk of death or illness from heart attack, stroke, and kidney failure.

35. Individuals with high blood pressure may lower their blood pressure by eating less salt.

36. Changes in habitual diet to reduce excessive salt intake may prove useful in the early prevention of high blood pressure in children.

The Effects of Alcohol

37. Heavy drinking can cause cirrhosis of the liver, nervous system disorders, and malnutrition.

38. High levels of alcohol in the body affect the absorption and use of essential nutrients.

39. The malnutrition associated with heavy drinking is caused by both improper diet and the effect of alcohol on the liver.

40. Alcohol consumption by pregnant women may cause birth defects.

The Effects of Fiber

41. Eating foods high in fiber may reduce the symptoms of chronic constipation and diverticulosis in some people.

TECHNICAL TERMS SUPPLEMENT
NUTRITION AND HEALTH

antibodies
arteriosclerosis
calcium
cancer
carbohydrate
cardiovascular
caries
cholesterol
chronic constipation
cirrhosis
contraction
diabetes
diverticulosis
enzymes
fluoride
gall bladder

hemoglobin
hormones
iodine
magnesium
malnutrition
niacin
nutrient
obesity
phosphorous
protein
RDA (Recommended Dietary Allowances)
riboflavin
susceptible
thiamin
zinc

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TEST SPECIFICATIONS

FOOD AND HEALTH

GENERAL DESCRIPTION

Children are presented with statements about health consequences related to nutrition. Children indicate whether each statement is true or false.

SAMPLE ITEM

> **This test has 15 sentences. If the sentence is correct, put a check under the word TRUE. If the sentence is incorrect, put a check under the word FALSE.**

TRUE FALSE

____ ____ 1. The body gets energy from carbohydrates.

STIMULUS ATTRIBUTES

1. A test item will consist of a single-sentence statement that the child is to judge as true or false. This statement will contain information related to a health consequence of nutrition.

2. All test items will be derived from the specifications supplement Food and Health. This supplement presents statements about nutrition based upon either empirical evidence or expert consensus. The statements are organized into sections, with each section containing information about one aspect of nutrition and health.

3. Each statement on the supplement consists of one main idea related to nutrition and health. A statement either (a) describes the nature or effects of a particular subject, (b) compares two subjects with respect to a particular attribute, or (c) presents a correlational or causal relationship between two or more subjects.

4. A test item will be based on a single statement selected from the supplement. If the supplement statement contains multiple parallel elements, only one of the elements will be used in the test item.

Example of a supplement statement with multiple parallel elements

Vitamin A helps the eyes, hair, skin, teeth, and bones to be healthy.

5. A test item will present a supplement statement in either accurate or inaccurate form. An accurate test item can be created in one of the following two ways:

   a. Direct restatement: Reiterating a statement exactly as it appears on the supplement.

   b. Paraphrase: Rephrasing a supplement statement to communicate the same message in different words. This rephrasing may include substituting synonyms for words in the statement and/or reordering words within the statement. The quantitative portion of a supplement statement may not be paraphrased.

   Example of a test item created by paraphrase

   Supplement statement: A person needs to eat a healthy diet in order to grow correctly.

   Test item: A healthy diet is necessary in order for people to grow correctly.

6. An inaccurate test item will be based on a supplement statement or a paraphrase of that statement. An inaccurate item can be created in one of the following three ways:

   a. Negation: Rewording a supplement statement to have the opposite meaning. If the statement is worded positively, negation is accomplished by adding a negative word or phrase to the statement. If the statement is worded negatively, negation is accomplished by taking out a negative word or phrase.

   Example of a test item created by negation

   Supplement statement: A person who doesn't eat a healthy diet is more likely to get colds and other diseases.

   Test item: A person who eats a healthy diet is more likely to get colds and other diseases.

b. Mutual exclusivity: Transforming a supplement statement to communicate a message that is mutually exclusive with the original message. This transformation can be accomplished by either (1) changing a single verb, adjective, or adverb in the original statement to a word or phrase with a contradictory meaning, (2) changing a comparative statement to either reverse the direction of the comparison made or make both terms being compared equal, or (3) changing a quantitative value to one that is different than the one given. A quantitative change must result in a new value that makes the original statement false, rather than a value that allows the statement to remain true because it represents a subset of the original statement. A quantitative change must be expressed in the same terms as the original value.

Examples of test items created by transformation to a mutually exclusive statement

Supplement statement: People with high blood pressure may lower their blood pressure by eating less salt.

Test item: People with high blood pressure will increase their blood pressure by eating less salt.

Supplement statement: Six of the ten main causes of death in the United States have something to do with what people eat.

Test item: Nine of the ten main causes of death in the United States have something to do with what people eat.

c. Substitution: Naming one nutrient and then making a statement about the function of another nutrient.

Example of a test item created by substitution

Supplement statement: Fat gives the body energy.

Test item: Vitamin C gives the body energy.

7. A test item will contain a maximum of 20 words. These words will be no higher than an eighth grade reading level on the IOX Basic Skills Word List. Technical terms not found on the word list may be used only if they are listed on the Technical Terms Supplement.

8. A test will contain an approximately equivalent number of accurate and inaccurate test items. These items will be selected according to the following procedures:

   a. One item will be randomly selected from each section of the supplement.

   b. The rest of the items will be randomly selected from the supplement as a whole.

   c. All of the items will be reviewed by content experts and modified as needed based upon this review.

9. All of the procedures for creating accurate and inaccurate test items will be used as equally as possible, with the exception of negation of a positively-stated supplement statement. This type of change will be used only when no other transformation is possible, as it results in a test item which requires the respondent to recognize that a negatively-stated idea is not accurate, in effect creating a double negative.

RESPONSE ATTRIBUTES

1. Two response columns will be provided. One column will be labeled "TRUE" and the other will be labeled "FALSE."

2. The correct answer to a question will be "TRUE" if the statement is accurate, or "FALSE" if the statement is inaccurate.

SPECIFICATIONS SUPPLEMENT

FOOD AND HEALTH

Functions of Key Nutrients

1. Nutrients are the parts of food that are used by the body to grow and to repair itself.

2. The 50 known nutrients found in food can be put into six groups.

3. The six groups of nutrients in food are protein, carbohydrate, fat, vitamins, minerals, and water.

4. Protein is needed to build, keep up, and repair body parts; to make hemoglobin, which takes oxygen to the cells; and to help the body keep from being sick.

5. Carbohydrate gives the body energy.

6. Fat gives the body energy, carries vitamins, and helps the skin and hair to be healthy.

7. Vitamin A helps the eyes, hair, skin, teeth, and bones to be healthy.

8. The B vitamins help the nerves to be healthy and help digestion.

9. Vitamin C helps the gums, blood vessels, bones, and teeth to be healthy.

10. Vitamin D helps the bones use calcium.

11. Minerals include fluoride, iron, and calcium.

12. Fluoride helps the teeth to be strong.

13. Iron carries oxygen in the blood to the cells of the body.

14. Calcium helps build strong bones and teeth.

15. Water helps the other nutrients get into the blood, takes waste from the body, and helps the body keep at the right temperature.

Diet and Health

16. Six of the ten main causes of death in the United States have something to do with what people eat.

17. People who eat more than they need may be more likely to get diseases.

18. People who eat too much sugar, too much salt, or too much fat may be more likely to get diseases.

19. People who eat too little vitamins and minerals may be more likely to get diseases.

20. A person who doesn't eat a healthy diet is more likely to get colds and other diseases.

21. A person needs to eat a healthy diet in order to grow correctly.

The Effects of Eating Too Much Food

22. A person who eats too much and does not exercise enough will store the extra food as fat and weigh too much.

23. Weighing too much is a very common health problem in the United States.

24. Weighing too much can make a person live for a shorter time.

The Effects of Eating Too Much Sugar

25. The chance of getting cavities in the teeth is greater the more often a person eats sugar and sweets.

26. The chance of getting cavities is greater if sweet foods stick to the teeth and/or are eaten between meals.

The Effects of Eating Too Much Salt

27. Eating foods with a large amount of salt may give some people high blood pressure.

28. People with high blood pressure are more likely to get certain diseases.

29. People with high blood pressure may lower their blood pressure by eating less salt.

TECHNICAL TERMS SUPPLEMENT

FOOD AND HEALTH

calcium
carbohydrate
cavity
cell
death
diet
digestion
disease
effect
energy
fluoride
gain
gums
hemoglobin
mineral
nerve
nutrient
oxygen
pressure
protein
vessel
vitamin

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TEST SPECIFICATIONS
WEIGHT MANAGEMENT

GENERAL DESCRIPTION

Individuals are presented with statements about aspects of weight management. Individuals indicate whether each statement is true or false.

SAMPLE ITEM

This test consists of 20 statements about weight management. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.

TRUE	FALSE		
____	____	1.	Overweight people are often malnourished because they eat many low nutrient, high calorie foods.

STIMULUS ATTRIBUTES

1. A test item will consist of a single-sentence statement that the individual is to judge as true or false. This statement will contain information related to an aspect of weight management.

2. All test items will be derived from the specifications supplement Weight Management. This supplement presents statements about weight management which are based upon either empirical evidence or expert consensus. The statements are organized into sections, with each section containing information about one aspect of weight management.

3. Each statement on the supplement consists of one main idea related to weight management. A statement either (a) describes the nature of a particular subject, (b) compares two subjects with respect to a particular attribute or (c) presents a correlational or causal relationship between two subjects.

4. A test item will be based on a single statement selected from the supplement. If the supplement statement contains multiple parallel elements, only one of the elements will be used in the test item.

Example of a supplement statement with multiple parallel elements

The average number of calories required by an individual depends upon that person's physical activity level, body size, age, and sex.

5. A test item will present a supplement statement in either accurate or inaccurate form. An accurate test item can be created in one of the following two ways:

   a. Direct restatement: Reiterating a statement exactly as it appears on the supplement.

   b. Paraphrase: Rephrasing a supplement statement to communicate the same message in different words. This rephrasing may include substituting synonyms for words in the statement and/or reordering words within the statement. The quantitative portion of a supplement statement may not be paraphrased.

   Example of a test item created by paraphrase

   Supplement statement: Excess energy is stored by the body in the form of fat.

   Test item: The body stores excess energy in the form of body fat.

6. An inaccurate test item will be based on a supplement statement or a paraphrase of that statement. An inaccurate item can be created in one of the following two ways:

   a. Negation: Rewording a supplement statement to have the opposite meaning. If the statement is worded positively, negation is accomplished by adding a negative word or phrase to the statement. If the statement is worded negatively, negation is accomplished by taking out a negative word or phrase.

   Example of a test item created by negation

   Supplement statement: Pregnant women should not diet in order to lose weight.

Test item: Pregnant women should diet in order to lose weight.

b. Mutual exclusivity: Transforming a supplement statement to communicate a message that is mutually exclusive with the original message. This transformation can be accomplished by either (1) changing a single verb, adjective, or adverb in the original statement to a word or phrase with a contradictory meaning, or (2) changing a comparative statement to either reverse the direction of the comparison made or make both terms being compared equal, or (3) changing a quantitative value to one that is different than the one given. A quantitative change must result in a new value that makes the original statement false, rather than a value that allows the statement to remain true because it represents a subset of the original statement. A quantitative change must be expressed in the same terms as the original value.

Examples of test items created by transformation to a mutually exclusive statement

Supplement statement: The percentage of total body fat in an individual's body increases gradually with age.

Test item: The percentage of total body fat in an individual's body decreases gradually with age.

Supplement statement: A healthy level of body fat for women is higher than it is for men.

Test item: A healthy level of body fat is the same for both men and women.

Supplement statement: When caloric intake is less than 1200 calories, there is a high risk of the diet lacking required nutrients.

Test item: When caloric intake is between 2500 and 3000 calories, there is a high risk of the diet lacking required nutrients.

7. A test item will contain a maximum of 25 words. These words will be no higher than an eighth grade reading level on the IOX Basic Skills Word List. Technical terms not found on the word list may be used only if they are listed on the Technical Terms Supplement.

8. A test will contain an approximately equivalent number of accurate and inaccurate test items. These items will be selected according to the following procedures:

   a. One item will be randomly selected from each section of the supplement.

   b. The rest of the items will be randomly selected from the supplement as a whole.

   c. All of the items will be reviewed by content experts and modified as needed based upon this review.

9. All of the procedures for creating accurate and inaccurate test items will be used as equally as possible, with the exception of negation of a positively-stated supplement statement. This type of change will be used only when no other transformation is possible, as it results in a test item which requires the respondent to recognize that a negatively-stated idea is not accurate, in effect creating a double negative.

RESPONSE ATTRIBUTES

1. Two response columns will be provided. One column will be labeled "TRUE" and the other will be labeled "FALSE."

2. The correct answer to a question will be "TRUE" if the statement is accurate, or "FALSE" if the statement is inaccurate.

SPECIFICATIONS SUPPLEMENT

WEIGHT MANAGEMENT

Body Composition

1. Body weight is determined by an individual's activity level and that person's food consumption.
2. Body composition is often expressed as the amount of body fat in comparison to the percent of all other tissues (i.e., muscles, bones, and nerves).
3. In most individuals weight gain is the result of increased amounts of body fat.
4. A healthy level of body fat for women is higher than it is for men.
5. The percentage of total body fat in an individual's body increases gradually with age.
6. Males up to 50 years old who have 20% or more body fat are considered severely overweight.
7. Women up to 50 years old who have 30% or more body fat are considered severely overweight.
8. Overweight people are often malnourished because they eat many low nutrient, high calorie foods.
9. Excess body fat can contribute to the development of high blood pressure, cardiovascular diseases, diabetes, and some kinds of cancer.
10. Reducing excess fat improves the health and extends the life span of most individuals.
11. Body composition may be changed by altering the amount of exercise and/or changing the amount and/or type of food consumed.

The Body's Energy Needs

12. The amount of energy required by the body during sleep, periods of rest, and for such functions as breathing, heart beating and eye blinking is called the resting energy requirement.
13. About two-thirds of the energy that a person needs is used to meet the body's resting energy requirement.

14. Thinking requires a very small amount of energy.

15. Energy is required for any physical activity such as walking, running, or swimming.

16. An individual's total energy need is the sum of that person's resting energy requirement plus the total amount of energy used in physical activities.

17. Energy is measured in units called calories.

18. Calories are supplied by the carbohydrates, proteins, fats, and alcohol people consume.

19. Vitamins and minerals do not supply calories.

20. A person is in energy balance when that person's total energy need equals the energy or calories provided by food eaten.

21. The average number of calories required by an individual depends upon that person's physical activity level, body size, age, and sex.

22. Individuals must adjust energy intake throughout their lives because resting energy and physical activity requirements change.

23. Consuming more calories than the body's total energy need results in the excess energy being stored by the body.

24. Excess energy is stored by the body in the form of fat.

25. Fat produced from excess energy increases body weight and the level of body fat.

26. A negative energy balance is achieved by using more calories than are consumed.

27. Reduction in body fat and weight can be achieved only during periods of negative energy balance.

Exercise and its Effects

28. Increasing the number of calories used through exercise and making no changes in the number of calories consumed will generally result in weight loss.

29. Maintaining a constant exercise pattern and decreasing the number of calories consumed will generally result in weight loss.

30. Increasing the number of calories used through exercise and decreasing the number of calories consumed will generally result in weight loss.

31. Moderate increases in the amount of exercise help control appetite.

32. Increased levels of exercise may be achieved by increasing the frequency, duration and/or intensity of an exercise program or adding a new form of physical activity.

33. Healthy, underweight individuals who wish to gain weight should exercise in order to improve overall physical conditioning.

Diet and its Effects

34. The goal of a reducing diet is to lower body weight by reducing the amount of body fat.

35. A reducing diet results in the loss of body fat by lowering the number of calories consumed per day.

36. Weight loss is greatest during the first few weeks of a diet plan.

37. During the first weeks of dieting the majority of weight loss is due to water loss.

38. A weight change diet (weight reduction or weight gain) will have the most long lasting success if it permanently changes eating habits.

39. Medical conditions such as liver, kidney, or heart disorders or diabetes require special attention when a person is dieting.

40. Pregnant women should not diet in order to lose weight.

41. Fat diets promising "quick" weight loss should be avoided because they can be harmful to an individual's health.

42. When caloric intake is less than 1200 calories per day, there is a high risk of the diet lacking essential nutrients.

43. A caloric intake of less than 1200 calories per day should be supervised by trained health professionals.

44. Consumption of alcohol contributes calories but essentially no nutrient value to a diet.

45. No specific food or combination of foods has any special ability to increase rate of weight loss.

46. Once a healthy weight is achieved, food intake should be adjusted with energy need until no further weight loss occurs.

Planning a Reducing Diet

47. A reducing diet should contain all the required nutrients in the amounts specified in the RDA (Recommended Dietary Allowances).

48. Achieving a balance between the total number of calories used and the number eaten does not ensure adequate intake of essential nutrients.

49. Foods must be judged according to the kinds and amounts of nutrients they supply in relation to their caloric content.

50. Foods which are high in fat and/or sugar content will contain more calories in proportion to nutrients than foods which are lower in fat and/or sugar content.

51. Foods which have a high sugar content include fruits canned in syrup; fruit juices prepared with sugar; many breads, bread products, and cereals; flavored yogurt; ice cream; ice milk; jam; jelly; syrup; cake; cookies; pie; doughnuts; sweet rolls; pastry; soft drinks; flavored gelatin; some wines; and liqueurs.

52. Foods which have a high fat content include avocado; olives; breads and bread products made with large amounts of shortening, such as biscuits and crackers; whole milk; hard and soft cheeses; creamed cottage cheese; ice cream; regular yogurt; eggs; beef; lamb; pork; duck; bacon; ham; sausage; shellfish; hot dogs; cold cuts; nuts and nut butters; seeds; butter; margarine; vegetable oil; vegetable shortening; lard; salad dressing; mayonnaise; gravy; cream; corn and potato chips; chitlings; and baked goods such as cake, cookies, pie, doughnuts, sweet rolls, and pastries.

53. The number of calories in a food may be affected by its method of preparation.

54. Baking, broiling, boiling, and steaming foods has little effect on their caloric content.

55. Breading and/or frying foods increases their caloric content.

56. Adding butter or margarine, oils, mayonnaise or salad dressings, sauces, gravy, or sugar to foods increases their caloric content.

TECHNICAL TERMS SUPPLEMENT

WEIGHT MANAGEMENT

avocado
cancer
cardiovascular
carbohydrate
chittlings
diabetes
duration
intake
intensity
liqueur
malnourished
margarine
mayonnaise
moderate
nutrient
protein
RDA (Recommended Dietary Allowances)
shortening
yogurt

BIBLIOGRAPHY
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U.S. Department of Agriculture. Essentials of an adequate diet. Washington, D.C.: Author, March 1956.

TEST SPECIFICATIONS

MAINTAINING AN APPROPRIATE DIET PLAN

GENERAL DESCRIPTION

Individuals are presented with a fictitious person's name and age, along with a record of a typical day's food intake for the person described. Individuals are to select from among four possible action plans the one that is most appropriate for the individual to follow in order to eat at least the recommended minimum number of servings from each food group. Each action plan indicates the additional servings from the four food groups that the person should add to his or her daily diet in order to reach the recommended daily levels.

SAMPLE ITEM

> **This test presents descriptions of individuals who want to be sure that they eat the recommended minimum number of servings from the four food groups. Each description includes a typical day's food record for the individual.**
>
> **Four possible action plans are presented below the daily food record. Each plan indicates the additional servings the individual can add to his or her daily diet. A column is also provided for you to use as a work space, if you wish, to keep count of the number of servings from each food group that the individual has already eaten.**
>
> **Read about each individual. Then put a check (√) in the box under the plan that helps the individual eat the recommended minimum number of servings from each food group. If the individual already eats at least the minimum number of servings needed from each food group, check Plan D.**

1.

Name: Steven Hill
Age: 30

Daily Food Record

1 glass orange juice
2 slices toast with butter
2 scrambled eggs
1 glass milk
6 ounces chicken
1 cup boiled peas and carrots
1 cup mashed potatoes
2 muffins with jelly
1 cup coffee
6 ounces liver
1 cup creamed spinach
1 cup noodles with butter
1 piece chocolate cake
1 cup coffee

Put a check in the box under the action plan that Steven should follow in order to eat at least the minimum number of servings from each food group:

Food Group	Servings (Work space)	Possible Action Plans			
		Plan A	Plan B	Plan C	Plan D
Vegetable and fruit group		Add 1 serving	-	-	-
Bread and cereal group		-	-	Add 1 serving	-
Milk and milk products group		-	Add 1 serving	-	-
Meat and meat alternates group		-	-	Add 1 serving	-

(Check answer here) ☐ ☐ ☐ ☐

(correct)

STIMULUS ATTRIBUTES

1. A test item will consist of the name and age of a fictitious person, a daily food record for that individual, and four possible action plans for the individual. If the person is either pregnant or a nursing mother, that will also be indicated. Test items will sample the age range from 16 to 60.

2. The Daily Food Record portion of a test item will list the foods and beverages consumed by the individual described. All foods listed will be selected from the Daily Food Guide that accompanies these specifications. Quantities will be indicated as follows:

   a. Vegetable-fruit group - serving sizes will be given by the glass (e.g., 1 glass orange juice), cup and half cup (e.g, 1 cup fruit salad, 1/2 cup steamed spinach), piece and half piece (e.g., 1 potato, 1/2 grapefruit), and bowl (e.g., 1 bowl salad). Where needed to clarify whether the vegetable or fruit is raw or cooked, preparation style will also be indicated (e.g., boiled, steamed).

   b. Bread-cereal group - serving sizes will be given by the piece (e.g., 1 slice bread, 1 roll), cup and half cup (e.g., 1 cup noodles, 1/2 cup rice), and bowl (e.g., 1 bowl oatmeal).

   c. Milk-milk products group - serving sizes will be given by the glass (e.g., 1 glass milk), cup (e.g., 1 cup yogurt), ounces (e.g., 1 1/3 ounces cheese), and scoops (e.g., 2 scoops ice cream).

   d. Meat-meat alternates group - serving sizes will be given by ounces (e.g., 6 ounces chicken), cups (e.g., 1 cup beans), and tablespoons (e.g., 4 tablespoons peanut butter). Eggs will be listed by number (e.g., 2 eggs).

   e. Mixed foods - serving sizes will be indicated according to the component foods in the mixed foods (e.g., tuna sandwich with 2 slices bread, 3 ounces tuna, 1/2 cup lettuce).

   f. Fats, sweets, alcohol group - serving sizes will be given where appropriate (e.g., 1 cup flavored gelatin, 1 can beer, 1 doughnut) or left unspecified (e.g., coffee with cream and sugar, toast with butter).

3. The Possible Action Plans portion of a test item will be displayed in a boxed form and have four food group entries: vegetables and fruits, breads and cereals, milk and milk products, and meat and meat alternates. A column labeled "Servings - Work space" will also be included. The following directive will precede the proposed plans: "Put a check in the box under the action plan that (name of individual) should follow in order to eat at least the minimum number of servings from each food group:"

4. The entries for the action plans A, B, C, and D will be either "Add (a number between 1 and 4) servings" or "-," indicating that no additional servings are needed.

RESPONSE ATTRIBUTES

1. Four answer choices will follow each test item: Plan A, Plan B, Plan C, and Plan D.

2. The correct answer choice will identify the action plan that, when combined with the servings listed in the Daily Food Record, provides the individual with at least the minimum number of servings required from each food group as listed on the Daily Food Guide. These standards, based upon the Recommended Dietary Allowances, are as follows:

Minimum Number of Servings Required

	RDA Category		
Food Group	Teenager	Adult	Pregnant/Nursing
Vegetable-Fruit	4	4	4
Bread-Cereal	4	4	4
Milk-Milk products	4	2	4
Meat-Meat alternates	2	2	2

3. The incorrect answer choices will identify action plans that, when combined with the servings listed in the Daily Food Record, do not bring the individual up to the minimum number of servings required in all four food groups.

DAILY FOOD GUIDE

FOOD GROUP	KEY NUTRIENT CONTRIBUTION	NUMBER OF DAILY SERVINGS	ONE SERVING*	REPRESENTATIVE SOURCES
Vegetable and Fruit	vitamin A vitamin C fiber folic acid (folacin) carbohydrate	4 servings	Vegetables 1 cup raw 1/2 cup cooked 1 average size vegetable (e.g., cucumber, tomato, carrot) Fruits 1 cup raw 1/2 cup juice 1 average size fruit (e.g., apple, pear, banana, orange)	Vegetable: artichoke, asparagus, bamboo shoots, beets, broccoli, cabbage, cactus, carrots, corn, dark green leafy vegetables, eggplant, green beans, green peas, peppers, potato, seaweed, sprouts, squash, sweet potato, tomato Fruits: apple, banana, berries, grapefruit kiwi, mango, melons, orange, papaya, peach, pear, pineapple
Bread and Cereal	carbohydrate thiamin niacin iron	4 servings	Breads 1 slice 1 piece (e.g., roll, muffin, biscuit 1/2 english muffin Pasta & Rice Products 1/2 cup cooked Cereals 1 ounce dry 1/2 cup cooked	Breads: bran, corn, enriched white, French, rye, wholegrain. Crackers, bun, biscuit, pretzel, bagel, tortilla Dry Cereals: bran, corn, oats, rice, wheat Cooked Cereals: buckwheat, corn, grits, oatmeal, rice, wheat Pasta: macaroni, noodles, spaghetti Rice: brown, white, wild
Milk and Milk Products	calcium protein riboflavin fat carbohydrate phosphorus magnesium	children - 3 servings teens - 4 servings adults - 2 servings pregnancy - 4 servings lactating - 4 servings	Milk 8 ounces (1 cup fluid) Cheese 1 1/3 ounces Other 1 1/2 cups cottage cheese 2 cups ice cream 1 cup yogurt	Milk: buttermilk, dry milk powder, low fat, non-fat (skim), whole Cheese: hard, soft; white, yellow; natural, processed Other: cottage cheese, ice cream, ice milk, yogurt
Meat and Meat Alternates	protein B vitamins iron fat zinc	2 servings	Meat, Poultry & Fish 3 ounces cooked Dry Beans & Peas 3/4 cup cooked Others 1/2 cup soybeans, lentils 1/4 cup shelled nuts, seeds 4 tablespoons nut butters 2 eggs 1/4 cup cooked tofu	Meat: beef, lamb, pork (including organs) Poultry: chicken, duck, turkey Fish and Shellfish: fresh, dried, canned Dried Beans and Peas: garbanzo, kidney, navy, pinto, black Others: lentils, nuts and nut butters, seeds, soybeans, eggs, tofu
Fats, Sweets and Alcohol	fat carbohydrate vitamin E	No recommendation. Consume in small quantities only after having enough servings from all other food groups and only if daily calorie allowance has not already been met.	No serving size established.	Fats: butter, margarine, vegetable oil, vegetable shortening, lard, salad dressing, mayonnaise, gravy, cream; snack chips (e.g., corn, potato); chitlings Sweets: sugar, syrup, honey, molasses, jam, jelly; cake, cookies, pie, doughnut, sweet roll, pastry; soft drinks, flavored gelatin Alcohol: liquor, liquer, beer, wine

* Servings note: Serving sizes for foods in each food group supply similar amounts of key nutrients but do not supply similar amounts of calories.

TEST SPECIFICATIONS

COMMUNICATING ABOUT DIETING

GENERAL DESCRIPTION

Individuals are presented with descriptions of fictitious persons who want to express their feelings about being on a diet or wish to request assistance with their efforts to implement a diet plan. Individuals are asked to select from among three statements the one that most clearly and directly communicates the fictitious person's message or to indicate that none of the suggested statements is appropriate.

SAMPLE ITEM

This test presents descriptions of people who want to communicate their feelings about dieting. They each have a message that they want to communicate to someone else.

Read each item. Then circle the letter of the choice that expresses the individual's message clearly and directly. If there is no clear and direct response given, circle choice D, "None of the above."

1. Jane wants to tell her husband how hard it is for her to stay on her diet when she is under pressure at work. The most clear and direct way for Jane to say this is:

   A. "You know how hard it is to for me to stay on a diet when I'm under pressure." (crystal ball message)

   B. "I'm under so much pressure at work, I'm afraid I won't be able to stay on my diet." (correct)

   C. "People should diet only when they aren't under pressure." (overgeneralized message)

   D. None of the above.

STIMULUS ATTRIBUTES

1. Test items will begin with brief descriptions of fictitious individuals who wish to communicate their feelings about being on a calorie, salt, or fat reduction diet or wish to request assistance with their efforts to implement a diet plan. Each description will be followed by the directive: "The most clear and direct way for (name of individual) to say this is:"

2. The situation described in the test item will include the following elements:

   a. a description of the problem or situational context

   b. a description of the contents of the intended message

   c. a phrase indicating to whom the message is being communicated (optional)

3. The types of messages eligible for testing are as follows:

   a. Feelings regarding the contents and implementation of one's diet plan - individuals communicate their feelings regarding their diet plan or their reactions to the success or failure of their efforts to reduce their calorie, salt, or fat intake. These feelings may cover a range of emotions from depression to elation.

   b. Requests for assistance with efforts to implement a diet plan - individuals who are trying to diet ask others to help with their efforts to implement a diet plan. Requests for assistance may include asking others not to buy or serve certain foods, or asking others to eat while in their presence.

4. The stimulus portion of a test item will be no longer than 45 words and will contain no words above an eighth grade level on the *IOX Basic Skills Word List*.

RESPONSE ATTRIBUTES

1. Four answer choices will follow each test question. The first three answer choices will be quotations which are plausible statements of the message to be communicated. The fourth answer choice will be "None of the above." This choice will be used to indicate that none of the three quotations clearly and directly communicates the individual's message.

2. The correct answer choice will either be a clear and direct statement of the individual's message or, if all of the specific answer choices given are examples of ineffective communication techniques, will be "None of the above."

3. An answer choice that is clear and direct statement of the individual's message will exemplify the following techniques of effective communication:

    a. The message states the entire intended message, not just a portion of it

    b. The individual is direct and specific in communicating the intended message.

    c. The individual uses words and phrases whose meanings are clear and easily understood.

    d. The individual uses the word "I" in the statement.

4. The incorrect answer choice will be a statement that is ineffective in communicating the individual's message. "None of the above" will be an incorrect answer if a correct answer is provided as one of the other answer choices.

5. An incorrect answer choice that is ineffective in communicating the individual's message will exemplify one of the following ineffective communication techniques:

    a. Overgeneralized Message - individuals assume either that a single experience is representative of all experiences (e.g., "People should diet only when they aren't under pressure."), or that particular behaviors always occur in certain circumstances (e.g., "I'll always eat too much when I'm under pressure at work.")

    b. Crystal Ball Message - individuals assume that others already know how they feel or what they want to communicate (e.g., "You know how hard it is for me to stay on a diet when I'm under pressure.")

    c. Judgment Message - individuals blame or criticize (e.g., "You must be blind not to see how difficult it is for me to diet when there's pressure at work.")

    d. Incomplete Message - individuals provide only part of the information needed to send a complete message (e.g., "I'm under so much pressure at work.")

6. The response option "None of the above" will be the correct response for approximately one-fourth of the test items.

7. Answer choices will be no longer than 20 words and will contain no words above an eighth grade level on the IOX Basic Skills Word List.

TEST SPECIFICATIONS
TALKING ABOUT DIETING

GENERAL DESCRIPTION

Children are presented with brief descriptions of fictitious persons who want to express their feelings about being on a diet or wish to request assistance with their efforts to implement a diet plan. Children are asked to select from among three statements the one that most clearly and directly communicates the fictitious person's message.

SAMPLE ITEM

This test is about young people who want to tell how they feel about dieting. Read about each person. Then choose the most clear and direct way of saying what the person wants to tell. Circle the letter of this choice.

1. Jane wants to tell her mother how hard it is for her to stay on her diet during summer vacation. The most clear and direct way for Jane to say this is:

   A. "You know how hard it is for me to diet during summer vacation." (crystal ball message)

   B. "I'm afraid I'll go off my diet during summer vacation." (correct)

   C. "I should never try to diet when I am on vacation." (overgeneralized message)

STIMULUS ATTRIBUTES

1. Test items will begin with brief descriptions of fictitious young people who wish either to communicate their feelings about being on a calorie, salt, or fat reduction diet or to request assistance with their efforts to implement a diet plan. Each description will be followed by the directive: "The most clear and direct way for (name of individual) to say this is:"

2. The situation described in a test item will include the following elements:

   a. a description of the problem or situational context

   b. a description of the contents of the intended message

   c. a phrase indicating to whom the message is being communicated (optional)

3. The types of messages eligible for testing are as follows:

   a. Feelings regarding the contents and implementation of one's diet plan - individuals communicate their feelings regarding their diet plan or their reactions to the success or failure of their efforts to reduce their calorie, salt, or fat intake. These feelings may cover a range of emotions from depression to elation.

   b. Requests for assistance with efforts to implement a diet regimen - individuals who are trying to diet ask others to help with their efforts to implement a diet plan. Requests for assistance may include asking others not to buy or serve certain foods or asking others not to eat in their presence.

4. The stimulus portion of a test item will be no longer than 45 words and will contain no words above a fourth grade level on the IOX Basic Skills Word List, except for the following word: diet.

RESPONSE ATTRIBUTES

1. Three answer choices will follow each test question. Each answer choice will be a quotation which is a plausible statement of the message to be communicated.

2. The correct answer choice will be a clear and direct statement of the individual's message. It will exemplify the following techniques of effective communication:

   a. The message states the entire intended message, not just a portion of it.

   b. The individual is direct and specific in communicating the intended message.

   c. The individual uses words and phrases whose meanings are clear and easily understood.

   d. The individual uses the word "I" in the statement.

3. An incorrect answer choice will be ineffective in communicating the individual's message. It will exemplify one of the following ineffective communication techniques:

   a. Overgeneralized Message - individuals assume either that a single experience is representative of all experiences (e.g., "People always eat too much on summer vacations."), or that particular behaviors always occur in certain circumstances (e.g., "I should never try to diet when I am on vacation.")

   b. Crystal Ball Message - individuals assume that others already know how they feel or what they want to communicate (e.g., "You know how hard it is for me to diet during summer vacation.")

   c. Judgment Message - individuals blame or criticize (e.g., "You must be blind not to notice how much I eat during summer vacation.")

   d. Incomplete Message - individuals provide only part of the information needed to send a complete message (e.g., "I sometimes have a hard time staying on my diet.")

4. Answer choices will be no longer than 20 words and will contain no words above a fourth grade level on the IOX Basic Skills Word List, except for the following word: diet.

TEST SPECIFICATIONS

RESPONDING TO OTHERS ABOUT DIETING

GENERAL DESCRIPTION

Individuals are presented with statements by fictitious persons. These statements either express a person's feelings about being on a diet or present a request for assistance with efforts to implement a diet plan. Individuals select from among four statements the response that best communicates acceptance and understanding of the fictitious person's situation.

SAMPLE ITEM

This test presents statements by individuals who want to communicate their feelings about dieting. Read each statement. Then circle the letter of the response that best communicates acceptance and understanding of the message.

1. Jane: "I've been trying to lose weight, but I'm under so much pressure that I'm afraid I might break down and go off my diet."

The response that best communicates acceptance and understanding of Jane's situation is:

A. "You probably want to eat to keep from facing whatever is bothering you." (diagnosing)

B. "It would be foolish for you to go off your diet now." (criticizing/disagreeing)

C. "You'll be sorry later if you break down and go off you diet today." (warning)

D. "You're concerned that you won't have the will power to stay on your diet when you're under pressure." (correct)

STIMULUS ATTRIBUTES

1. Test items will begin with statements by fictitious persons who want to communicate their feelings about being on a calorie, salt, or fat reduction diet or want to request assistance with their efforts to implement a diet plan. The statements will be followed by the directive, "The response that best communicates acceptance and understanding of (name of individual) is:"

2. The statement presented in the test item will include the following elements:

   a. a description of the problem or situational context

   b. a description of the message contents

3. The types of messages eligible for testing are as follows:

   a. Feelings regarding the contents and implementation of one's diet plan - individuals communicate their feelings regarding their diet plan or their reactions to the success or failure of their efforts to reduce their food, salt, or fat intake. These feelings may cover a range of emotions from depression to elation.

   b. Requests for assistance with efforts to implement a diet regimen - individuals who are trying to diet ask others to help with their efforts to implement a diet plan. Requests for assistance may include asking others not to buy or serve certain foods.

4. The stimulus portion of a test item will be no longer than 45 words and will contain no words above an eighth grade level on the *IOX Basic Skills Word List*.

RESPONSE ATTRIBUTES

1. Four answer choices will follow each test question. Each choice will be a quotation which is a plausible response to the message being communicated.

2. The correct response will exemplify the following techniques of effective responding:

   a. The respondent accurately paraphrases all of the sender's message.

   b. The respondent includes the word "you."

c. By choice of words and by avoidance of any judgments, criticisms, or directions, the respondent implies respect, acceptance, and understanding for the sender.

3. An incorrect answer choice will exemplify one of the following ineffective communication techniques:

   a. Directing - the respondent tells the message sender how to solve a problem or suggests what to do (e.g., "Do not eat any snacks at work.")

   b. Warning - the respondent tells the message sender the consequences that might occur, with or without presenting facts or logic, or tells the message sender to consider the consequences (e.g., "You'll be sorry later if you break down and go off your diet.")

   c. Criticizing/Disagreeing - the respondent criticizes or disagrees with the message sender (e.g., "It would be foolish for you to go off your diet now.")

   d. Diagnosing - the respondent provides motives or explanations (e.g., "You probably want to eat to keep from facing your work.")

4. Answer choices will be no longer than 20 words and will contain no words above an eighth grade level on the *IOX Basic Skills Word List*.

TEST SPECIFICATIONS

IDEAS ABOUT EATING

GENERAL DESCRIPTION

This inventory is a Likert scale in which respondents are asked to register their degree of agreement with a series of statements about the possible effects of a healthy diet on the growth and development of children and on one's health, appearance, physical fitness, sense of well-being, and ability to maintain a proper weight.

SAMPLE ITEM

This survey is about how people might be affected by the foods they eat. Please respond to all the statements in the survey.

Read each statement. Decide the extent to which you agree with it. Circle the appropriate letter to the left of the statement. Use the following scale:

SA = Strongly Agree
A = Agree
U = Uncertain
D = Disagree
SD = Strongly Disagree

SA A U D SD 1. The foods people eat have no effect on how quickly they get well when they are sick.

STIMULUS ATTRIBUTES

1. An item will consist of a statement about a possible effect of maintaining a healthy diet. These effects will pertain to the areas of growth and development of children, or to one's health, appearance, physical fitness, sense of well-being, or ability to maintain a proper weight.

2. The overall health effects of maintaining a healthy diet will be speed of recovery from illness, frequency of illness, general feelings of health, general state of health, and the general health dangers of eating incorrectly for even a few weeks.

3. The inventory will contain a proportionate number of items in which maintaining a healthy diet has a positive consequence and has no impact or a negative effect. The inventory will overrepresent the number of statements about the effects of eating on health.

4. Each statement will be 25 words or less in length. The words used will not exceed the eighth grade level on the IOX Basic Skills Word List.

RESPONSE ATTRIBUTES

1. The following five response options will be available for each item:

   SA = Strongly Agree
   A = Agree
   U = Uncertain
   D = Disagree
   SD = Strongly Disagree

2. Respondents are to use the response options to indicate the extent to which their beliefs about the effects of maintaining a healthy diet are properly represented in an item's statement. Respondents circle the letter of their response to the left of each item.

SCORING AND INTERPRETATION

1. The rationale underlying this measure is that respondents who believe in the positive effects of maintaining a healthy diet on children's growth and development, and on one's health, appearance, physical fitness, sense of well-being, and ability to maintain a proper weight, will more frequently (a) agree with statements which describe a positive consequence of maintaining a healthy diet and (b) disagree with statements which describe maintaining a healthy diet as having no impact or a negative effect.

2. Point values are assigned to items according to whether the consequence of maintaining a healthy diet is seen as positive or non-positive (i.e., neutral or negative). Items which describe a positive effect of maintaining a healthy diet are assigned the following values: SA = 5 points, A = 4 points, U = 3 points, D = 2 points, SD = 1 point. Items which describe a non-positive effect of maintaining a healthy diet are assigned the following values: SA = 1 point, A = 2 points, U = 3 points, D = 4 points, SD = 5 points.

3. High scores indicate a strong belief in the positive effects of maintaining healthy diet on children's growth and development, and on one's health, appearance, physical fitness, sense of well-being, and ability to maintain a proper weight.

MEASURE FORMAT

1. The following plan indicates the key characteristics of the "Ideas About Eating" inventory developed from these test specifications.

Item	Area of Effect	Maintaining a Healthy Diet Perceived as Positive
1	Health	No
2	Weight Control	Yes
3	Children's growth & development	Yes
4	Health	No
5	Health	No
6	Physical fitness	No
7	Health	Yes
8	Health	Yes
9	Children's growth and development	No
10	Health	Yes
11	Weight control	No
12	Physical fitness	Yes
13	Appearance	Yes
14	Sense of well-being	Yes
15	Health	No
16	Health	Yes
17	Health	Yes
18	Appearance	No
19	Health	No
20	Sense of well-being	No

TEST SPECIFICATIONS

WHAT EATING DOES

GENERAL DESCRIPTION

This inventory is a Likert scale in which children are asked to register their degree of agreement with a series of statements about the possible effects of a healthy diet on a person's growth and development, health, appearance, physical fitness, sense of well-being, and ability to maintain a proper weight.

SAMPLE ITEM

> **The statements below are about how people might be affected by the foods they eat. Circle the word that shows how much you agree with each statement.**
>
> **YES = I agree**
> **MAYBE = I am not sure if I agree**
> **NO = I do not agree**

YES MAYBE NO 1. The foods people eat do not affect how fast they get well when they are sick.

STIMULUS ATTRIBUTES

1. An item will consist of a statement about a possible effect of maintaining a healthy diet. These effects will pertain to the areas of growth and development, health, appearance, physical fitness, sense of well-being, or ability to maintain a proper weight.
2. The overall health effects of maintaining a healthy diet will be speed of recovery from illness, frequency of illness, and general feeling of health.
3. The inventory will contain a proportionate number of items in which maintaining a healthy diet has a positive consequence and has no impact or a negative effect. The inventory will overrepresent the number of statements about the effects of eating a healthy diet on health.

4. Each statement will be 20 words or less in length. The words used will not exceed the fourth grade level on the IOX Basic Skills Word List, except for the following words: affect, physical.

RESPONSE ATTRIBUTES

1. The following three response options will be available for each item:

   YES = I agree
   MAYBE = I am not sure if I agree
   NO = I do not agree

2. Children are to use the response options to indicate the extent to which their beliefs about the effects of maintaining a healthy diet are properly represented in an item's statement. Respondents circle the word of their response to the left of each item.

SCORING AND INTERPRETATION

1. The rationale underlying this measure is that respondents who believe in the positive effects of maintaining a healthy diet on growth and development, health, appearance, physical fitness, sense of well-being, and ability to maintain a proper weight, will more frequently (a) agree with statements which describe a positive consequence of maintaining a healthy diet and (b) disagree with statements which describe maintaining a healthy diet as having no impact or a negative effect.

2. Point values are assigned to items according to whether the consequence of maintaining a healthy diet is seen as positive or non-positive (i.e., neutral or negative). Items which describe a positive effect of maintaining a healthy diet are assigned the following values: YES = 2 points, MAYBE = 1 point, NO = 0 points. Items which describe a non-positive effect of maintaining a healthy diet are assigned the following values: YES = 0 points, MAYBE = 1 point, NO = 2 points.

3. High scores indicate a strong belief in the positive effects of maintaining a healthy diet on one's growth and development, health, appearance, physical fitness, sense of well-being, and ability to maintain a proper weight.

MEASURE FORMAT

1. The following plan indicates the key characteristics of the "What Eating Does" inventory developed from these test specifications.

Item	Area of Effect	Maintaining a Healthy Diet Perceived as Positive
1	Health	No
2	Weight control	Yes
3	Growth and development	Yes
4	Health	No
5	Physical fitness	No
6	Health	Yes
7	Growth and development	No
8	Health	Yes
9	Weight control	No
10	Physical fitness	Yes
11	Appearance	Yes
12	Sense of well-being	Yes
13	Health	Yes
14	Appearance	No
15	Health	No
16	Sense of well-being	No

TEST SPECIFICATIONS

WOULD YOU TRY THESE?

GENERAL DESCRIPTION

Individuals are presented with names of food items and are asked to indicate their level of willingness to try each item. Responses to this measure will be used to infer the willingness of individuals to consume a variety of foods.

SAMPLE ITEM

Various foods are listed below. For each one, circle the response that describes how willing you would be to try that food, if it were available to you.

YES = I would be very willing to try it.

MAYBE = I would consider trying it.

NO = I would rather not try it.

Circle only one response for each food.

YES MAYBE NO 1. Mango

STIMULUS ATTRIBUTES

1. Each item will name a food from one of five categories: breads and cereals, meats and meat alternates, milk and milk products, fruits and vegetables, and mixed foods (foods which contain ingredients from more than one category).
2. There will be an approximately equal number of items for each category.
3. Foods will be selected to offer a range of familiarity to respondents. Items will name some foods that are familiar to most people and some that are familiar to few people.

4. The food items will be one to three words in length. Words will not exceed the eighth grade word level of the IOX Basic Skills Word List with the exception of the foods listed on the Vocabulary Supplement.

RESPONSE ATTRIBUTES

1. The following three response options will be available for each food item:

   YES = I would be very willing to try it.

   MAYBE = I would consider trying it.

   NO = I would rather not try it.

2. Respondents are to use the response options to indicate their level of willingness to try various foods. Respondents circle the letter of their response to the left of each item.

SCORING AND INTERPRETATION

1. The rationale underlying this measure is that respondents who are willing to try a wide variety of familiar and unfamiliar foods will be more willing to consume a variety of foods as a part of their regular diet.

2. Point values are assigned to items according to the willingness of individuals to try a food. The following values are assigned to responses: YES = 2 points, MAYBE = 1 point, NO = 0 points.

3. High scores indicate a willingness to try a variety of foods.

4. By analyzing all of the items on this questionnaire as one set, program personnel can infer the willingness of participants to try a variety of foods. Separate analyses of responses by category will permit separate inferences about the willingness to try foods in certain food categories.

MEASURE FORMAT

1. The following plan indicates the food category represented by each food item in the "Would You Try These?" inventory developed from these test specifications.

Item	Food Category
1	Fruits and vegetables
2	Meats and meat alternates
3	Breads and cereals
4	Mixed food
5	Milk and milk products
6	Meats and meat alternates
7	Mixed food
8	Milk and milk products
9	Fruits and vegetables
10	Meats and meat alternates
11	Milk and milk products
12	Mixed food
13	Fruits and vegetables
14	Milk and milk products
15	Breads and cereals
16	Fruits and vegetables
17	Milk and milk products
18	Mixed food
19	Meats and meat alternates
20	Breads and cereals
21	Mixed food
22	Breads and cereals
23	Meats and meat alternates
24	Fruits and vegetables
25	Milk and milk products
26	Mixed food
27	Breads and cereals
28	Meats and meat alternates
29	Breads and cereals
30	Fruits and vegetables

TECHNICAL TERMS SUPPLEMENT

WOULD YOU TRY THESE?

bagel
chow mein
collard greens
eggplant
halibut
honeydew melon
lentils
manicotti
mango
souffle
soybeans
tofu
tortilla
veal
yogurt

TEST SPECIFICATIONS
WHAT WOULD YOU EAT?

GENERAL DESCRIPTION

Children are presented with names of food items and are asked to indicate their level of willingness to eat each one. Responses to this measure will be used to infer the willingness of children to consume a variety of foods.

SAMPLE ITEM

Some different kinds of foods are listed below. For each one, circle the word that tells how willing you would be to eat that food, if someone offered you some.

YES = I would be very willing to eat it.

MAYBE = I might eat it.

NO = I would probably not eat it.

Circle only one word for each food.

YES MAYBE NO 1. Tomato

STIMULUS ATTRIBUTES

1. Each item will name a food from one of five categories: breads and cereals, meats and meat alternates, milk and milk products, fruits and vegetables, and mixed foods (foods which contain ingredients from more than one category).
2. There will be an approximately equal number of items for each category.
3. Foods will be selected to offer a range of familiarity to children. Items will name some foods that are very familiar to most children and some that are less familiar.
4. The food items will be one to three words in length. Words will not exceed the fourth grade word level on the IOX Basic Skills Word List with the exception of the foods listed on the Vocabulary Supplement.

RESPONSE ATTRIBUTES

1. The following three response options will be available for each food item:

   YES = I would be very willing to eat it.

   MAYBE = I might eat it.

   NO = I would probably not eat it.

2. Respondents are to use the response options to indicate their level of willingness to eat various foods. Respondents circle the word of their response to the left of each item.

SCORING AND INTERPRETATION

1. The rationale underlying this measure is that respondents who are willing to eat a wide variety of familiar and unfamiliar foods will be more willing to consume a variety of foods as a part of their regular diet.

2. Point values are assigned to items according to the willingness of individuals to eat a food. The following values are assigned to responses: YES = 2 points, MAYBE = 1 point, NO = 0 points.

3. High scores indicate a willingness to eat a variety of foods.

4. By analyzing all of the items on this questionnaire as one set, program personnel can infer the willingness of participants to eat a variety of foods. Separate analyses of responses by category will permit separate inferences about the willingness to eat foods in certain food categories.

MEASURE FORMAT

1. The following plan indicates the food category represented by each food item in the "What Would You Eat?" inventory developed from these test specifications.

Item	Food Category
1	Fruits and vegetables
2	Meats and meat alternates
3	Breads and cereals
4	Mixed food
5	Milk and milk products
6	Meats and meat alternates
7	Mixed food

Item	Food Category
8	Milk and milk products
9	Fruits and vegetable
10	Meats and meat alternates
11	Milk and milk products
12	Mixed food
13	Fruits and vegetables
14	Milk and milk products
15	Breads and cereals
16	Fruits and vegetables
17	Milk and milk products
18	Mixed food
19	Meats and meat alternates
20	Breads and cereals
21	Mixed food
22	Breads and cereals
23	Meats and meat alternates
24	Fruits and vegetables
25	Breads and cereals

TECHNICAL TERMS SUPPLEMENT

WHAT WOULD YOU EAT?

broccoli
chili
custard
honeydew melon
liver
meat loaf
scrambled eggs
skim milk
spinach
tofu
tortilla
yogurt

TEST SPECIFICATIONS

EATING CORRECTLY

GENERAL DESCRIPTION

This measure is designed to assess individuals' perceived self-efficacy in being able to maintain a healthy diet. Individuals are presented with a series of situations which might promote or serve as barriers to maintaining a healthy diet and are asked to indicate if they can regularly maintain a healthy diet in each situation. If they indicate that they can maintain a healthy diet, they are asked to estimate, on a 10 to 100 numerical scale, how confident they are of their ability to maintain a healthy diet in that situation.

SAMPLE ITEM

This survey describes various situations. Read each statement. Circle YES or NO to show if you could maintain a healthy diet in that situation. A healthy diet is one which provides all necessary nutrients and limits calories to the amount needed. If you circle YES, then use the Confidence Scale to show how certain you are of your answer.

The following example shows how the Confidence Scale is used.

Physical Strength Examples	**CAN YOU DO THIS?**	**IF YES, HOW CERTAIN ARE YOU?**
You can lift a 50 pound weight.	**[✓ YES]/NO**	70
You can lift a 200 pound weight.	**YES/[✓ NO]**	____

Confidence Scale

10	20	30	40	50	60	70	80	90	100
Very Uncertain				Somewhat Certain					Very Certain

		CAN YOU MAINTAIN A HEALTHY DIET?	IF YES, HOW CERTAIN ARE YOU?
1.	You eat out frequently.	YES/NO	____

STIMULUS ATTRIBUTES

1. An item will describe a situation which might serve as a barrier to maintaining a healthy diet. The item will be written in second person and will refer to someone's participation or feelings, for example, "You feel depressed."

2. The situations presented in test items will involve, directly or indirectly, the desire to lose weight, the eating patterns of self or others, the availability of food, time or financial constraints, social pressures, emotional state, or physical state.

3. Situations will be selected to be applicable to most individuals. For example, a situation describing an individual's being busy because of a job will not be used because potential respondents might not hold jobs. Situations in which individuals are generally busy, however, would be appropriate.

4. Each item will be 20 words or less in length. The words used will not exceed the eighth grade level of the *IOX Basic Skills Word List*.

RESPONSE ATTRIBUTES

1. For each item, two response opportunities are available, a YES/NO answer and a confidence rating.

2. Respondents are to use the YES/NO option to indicate whether they can maintain a healthy diet in the situation given.

3. If respondents answer YES to an item, they are to indicate how confident they are that they can maintain a healthy diet in the situation described, by selecting a number from the following confidence scale:

Confidence Scale

10	20	30	40	50	60	70	80	90	100
Very Uncertain				Somewhat Certain					Very Certain

SCORING AND INTERPRETATION

1. The rationale underlying this measure is that the more often respondents indicate that they can, with a high degree of confidence, maintain a healthy diet, the stronger the perceived self-efficacy of those respondents in being able to maintain a healthy diet.

2. This inventory can be scored in several ways, two of which are described here. In the first procedure, the number of YES responses is used as a gross index of an individual's perceived ability to maintain a healthy diet. The more YES responses, the more situations in which individuals believe that they can maintain a healthy diet.

   A combined analysis of YES/NO responses and confidence ratings allows for a more complete assessment of program effectiveness, as it incorporates both sources of information in a single index. This analysis is accomplished by computing the mean strength of the rated ability across all items, that is, by dividing the sum of the confidence ratings made in conjunction with "YES" responses by the number of items in the questionnaire. High scores reflect a strong perceived ability to regularly maintain a healthy diet across a variety of settings, along with a high level of confidence in that ability.

TEST SPECIFICATIONS

EATING INTENTIONS

GENERAL DESCRIPTION

This measure is designed to assess the extent to which individuals intend to maintain a healthy diet. Individuals are asked whether they intend to maintain a healthy diet during specified future time periods. If individuals indicate that they intend to maintain a healthy diet for a particular time period, they are asked to estimate, on a 10 to 100 numerical scale, the strength of their intention.

SAMPLE ITEM

This survey asks about your intention to maintain a healthy diet. A healthy diet is one which provides all necessary nutrients and limits calories to the amount needed.

Read each question, then circle YES or NO. If you circle YES, then use the Confidence Scale to show how certain you are that you intend to maintain a healthy diet.

The following examples show how the Confidence Scale is used.

Physical Strength Examples	**CIRCLE YES OR NO**	**IF YES, HOW CERTAIN ARE YOU?**
Can you lift a 50 pound weight?	**[✓ YES]/NO**	70
Can you lift a 200 pound weight?	**YES/[✓ NO]**	

Confidence Scale

10	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**
Very Uncertain				**Somewhat Certain**					**Very Certain**

	CIRCLE YES OR NO	IF YES, HOW CERTAIN ARE YOU?
1. Do you intend to maintain a healthy diet for the next 24 hours?	YES/NO	____

STIMULUS ATTRIBUTES

1. An item will take the form specified below, varying in the temporal span cited, e.g., one week, one month, etc.:

   "Do you intend to maintain a healthy diet for the next (specific time period)?"

2. The temporal spans specified will be time periods which are apt to be meaningful to respondents, for example, "one week" as opposed to "168 hours" (a week's worth of hours).

3. The temporal spans cited will be presented from shortest to longest, requiring respondents to consider their intentions to maintain a healthy diet during increasingly longer time periods.

4. Each item will be 15 words or less in length. The words used will not exceed the eighth grade level on the IOX Basic Skills Word List.

RESPONSE ATTRIBUTES

1. For each item, two response opportunities are available, a YES/NO answer and a confidence rating.

2. Respondents are to use the YES/NO option to indicate whether they intend to maintain a healthy diet during the temporal span given.

3. If respondents answer YES to an item, they are then to indicate the strength of their intention to maintain a healthy diet during the temporal span given, using the following Confidence Scale:

   Confidence Scale

10	20	30	40	50	60	70	80	90	100
Very Uncertain				Somewhat Certain					Very Certain

SCORING AND INTERPRETATION

1. The rationale underlying this measure is that the longer the temporal span during which respondents indicate that they intend, with a high degree of confidence, to maintain a healthy diet, the stronger the overall intention of those respondents to maintain a healthy diet.

2. This measure can be scored in several ways, two of which are described here. In the first procedure, the number of YES responses is used as a gross index of an individual's intention to maintain a healthy diet. The more YES responses, the longer the temporal span during which an individual intends to maintain a healthy diet.

   A combined analysis of YES/NO responses and confidence ratings allows for a more complete assessment of program effectiveness, as it incorporates both sources of information in a single index. This analysis is accomplished by computing the mean strength of the confidence ratings across all items, that is, by dividing the sum of the confidence ratings made in conjunction with "YES" responses by the number of items in the measure. High scores reflect a strong intention to maintain a healthy diet for an extended period of time.

TEST SPECIFICATIONS

MY BODY

GENERAL DESCRIPTION

This measure is designed to assess children's respect for their bodies. Children are asked to indicate whether they would engage in activities which are healthful and avoid activities which are harmful to the body.

SAMPLE ITEM

Read each question. Then put a check (√) under the answer that best tells what you are willing to do to take care of your body.

In order to take care of your body, are you willing to ...	CERTAINLY YES	PROBABLY YES	MAYBE	PROBABLY NOT	CERTAINLY NOT
1. ... exercise several times each week?	___	___	___	___	___

STIMULUS ATTRIBUTES

1. An item will specify a healthful activity or the avoidance of a harmful activity. Individuals are to indicate if they would be willing to take care of their bodies even if it means engaging in the healthful activity or avoiding the harmful activity.

2. The activities presented in the test items will be important to maintaining healthy bodies. These activities will include exercising; getting adequate rest; avoiding cigarettes, alcohol, and unnecessary drugs; following doctor's orders; seeing a doctor regularly; obtaining immunizations; eating properly; and avoiding unnecessary stress.

3. Each item will be 10 words or less in length. The words used will not exceed the fourth grade level on the IOX Basic Skills Word List, except for the following words: alcohol, cigarettes, diseases, immunizations.

RESPONSE ATTRIBUTES

1. The following five response options will be available for each item: CERTAINLY YES, PROBABLY YES, MAYBE, PROBABLY NOT, and CERTAINLY NOT.

2. Children are to use the response options to indicate their willingness to take care of their bodies in the specified manner. Respondents are to place a check in the appropriate space to the right of each item.

SCORING AND INTERPRETATION

1. The rationale underlying this measure is that the more often children indicate that they are willing, with certainty, to take care of their bodies even if it means engaging in healthful activities or avoiding harmful ones, the stronger their respect for their bodies.

2. Point values are assigned to items according to the certainty of the children in being willing to take care of their bodies, as follows: CERTAINLY YES = 5 points, PROBABLY YES = 4 points, MAYBE = 3 points, PROBABLY NOT = 2 points, CERTAINLY NOT = 1 point.

3. High scores indicate a strong respect for one's body, as evidenced by a willingness to engage in activities which are healthful and to avoid those which are not.

ANNOTATED EVALUATION BIBLIOGRAPHY

(1) American Psychological Association. Ethical principles in the conduct of research with human participants. Washington, D.C.: Author, 1973.

This treatise focuses on the appropriateness of carrying out various types of research investigations with human subjects. Because the American Psychological Association has had a long-standing concern about ethical issues in the conduct of research investigations, this publication will be of interest to numerous evaluators of health education programs.

(2) American Psychological Association, American Educational Research Association, National Council on Measurement in Education. Standards for educational and psychological tests. Washington, D.C.: Author, 1974.

This soon-to-be-revised volume presents the most widely used set of standards for psychological and educational tests. Frequently cited by users of educational tests, the standards have recently been employed in numerous judicial deliberations. Relatively brief, the standards should be consulted by health educators who employ assessment devices regularly.

(3) Anderson, L.W. Assessing affective characteristics in the schools. Boston: Allyn and Bacon, 1981.

Anderson provides an excellent set of practical suggestions for the creation of affective assessment instruments. He includes one of the most easily understood expositions of various scaling procedures including Likert, Thurstone, and Guttman scales.

(4) Berk, R.A. (Ed.). Criterion-referenced measurement: the state of the art. Baltimore: The Johns Hopkins University Press, 1980.

This collection of essays consists of papers presented at the first John Hopkins University National Symposium on Educational Research. The authors treat many of the important problems, both conceptual and technical, facing developers and users of criterion-referenced measures.

(5) Berk, R.A. (Ed.). Handbook of methods for detecting test bias. Baltimore: The Johns Hopkins University Press, 1982.

This collection of individual essays offers the reader an up-to-date depiction of methods currently available to detect the presence of bias in tests.

(6) Campbell, D.T., & Stanley, J.C. Experimental and quasi-experimental designs for research. Chicago: Rand McNally, 1966.

This volume, originally a chapter in a larger volume, has had substantial impact on the fields of research and evaluation. Evaluators of health education will wish to consider this truly classic treatment of data-gathering designs suitable for experimental and quasi-experimental settings.

(7) Churchill, G.A., Jr. Marketing research: methodological foundations (2nd ed.). Hinsdale, Ill: The Dryden Press, 1979.

Although written in the context of marketing research, this textbook covers several topics of vital importance in evaluation. Topics such as research design, data collection, sampling, and data analysis are covered in a readily understandable yet accurate way. An excellent resource.

(8) Cohen, J. Statistical power analysis for the behavioral sciences (Rev. ed.). New York: Academic Press, 1977.

Cohen offers a useful treatment of factors which should be considered when one draws samples for use in research or evaluation activities. Of special interest is the set of easy-to-use guidelines he offers for determining the estimated sample size necessary to detect differences between groups.

(9) Cook, T.D., & Campbell, D.T. Quasi-experimentation: design & analysis issues for field settings. Chicago: Rand McNally, 1979.

This widely cited volume provides a comprehensive treatment of quasi-experimental investigations in settings of substantial relevance to the concerns of health educators. There are excellent discussions included of internal and external validity, including the various threats to both types of validity. A systematic consideration of the commonly used data-gathering designs is offered, including an extended appraisal of interrupted time-series designs.

(10) Cook, T.D., & Campbell, D.T. The design and conduct of quasi-experiments and true experiments in field settings. In M.D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally, 1976.

This is an updated version of the famous exposition of quasi-experimental and experimental data-gathering designs by Donald T. Campbell and Julian C. Stanley (see reference No. 6). An excellent discussion of four types of validity is featured in this essay.

(11) Cronbach, L.J. Course improvement through evaluation. Teachers College Record, May 1963, 64, 672-683.

An early piece, presenting the virtues of what would later be termed, "formative" evaluation. This article rings as true today as it did nearly two decades ago, and applies as much to evaluation in health education as it does to more traditional evaluation. Emphasizing the role of evaluation in gathering information which can improve programs, this article is well worth reading.

(12) Cronbach, L.J., and associates. Toward reform of program evaluation. San Francisco: Jossey-Bass, 1981.

A recent publication, this book considers the function of evaluation in a pluralistic society and presents 95 theses on the role of evaluators and evaluations. In addition to providing a contemporary conception of evaluation, it provides a historical and multidisciplinary perspective on the field. This volume will be of considerable interest to those evaluating health education programs.

(13) Cronbach, L.J., et al. Analysis of covariance in nonrandomized experiments: parameters affecting bias. Unpublished occasional paper, Stanford Evaluation Consortium, Stanford University, 1977.

A highly technical piece on the complications associated with using analysis of covariance, this article is recommended only for those prepared to handle a critical problem in a sophisticated way.

(14) Cronbach, L.J., & Furby, L. How should we measure 'change' - or should we? Psychological Bulletin, 1970, 74, 68-80.

A technical treatise on the dangers associated with using gain scores. A very significant piece, but recommended only for those with some psychometric training.

(15) Ebel, R.L. Essentials of educational measurement (3rd ed.). Englewood Cliffs, N.J.: Prentice-Hall, 1979.

This is a standard, easily read introductory text, covering important topics in the field of educational testing. Ebel, a prominent leader of traditional educational testing practices, provides a lucid treatment of a wide range of measurement topics.

(16) Green, L.W. Research methods translatable to the practice setting: from rigor to reality and back. In S. Cohen (Ed.) New directions in patient compliance. Lexington, Mass.: Lexington Books, 1979.

Green deals with a practical dilemma facing those who evaluate health education programs, namely, the necessity to make trade-offs between validity and feasibility in field settings. Six strategies for coping with evaluation under adverse circumstances are described.

(17) Green, L.W., & Figá-Talamanca, I. Suggested designs for evaluation of patient education programs. Health Education Monographs, September 1974, 2 (1).

In this essay Green and Figá-Talamanca suggest data-gathering designs for conducting evaluations of patient education programs. The authors also explore several issues related to evaluations of this variety.

(18) Hambleton, R.K., et al. Criterion-referenced testing and measurement: a review of technical issues and development. Review of Educational Research, Winter 1978, 48 (1), 1-48.

This is a comprehensive review of the field of criterion-referenced testing. Hambleton and his colleagues do a masterful job of isolating the key issues in criterion-referenced testing, then describing results of research investigations bearing on those issues. Somewhat technical at times, this review is one of the more widely cited essays dealing with criterion-referenced testing.

(19) Hays, W.L. Statistics for the social sciences (2nd ed.). New York: Holt, Rinehart, and Winston, 1973.

A comprehensive text dealing with basic and advanced statistical considerations. Somewhat technical at points, Hays nonetheless provides an excellent set of step-by-step guidelines to statistical practice.

(20) Hull, C., & Nie, N.H. Statistical packages for the social sciences (SPSS). New York: McGraw-Hill, 1978.

This is a widely used, well organized set of "canned" computer analysis programs for use in the social sciences. Health educators who have occasion to use computer analyses will find the SPSS manual most helpful.

(21) Joint Committee on Standards for Educational Evaluation. Standards for evaluations of educational programs, projects, and materials. New York: McGraw-Hill, 1981.

The development of these evaluation standards was spearheaded by a joint committee of the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education. Thirty standards are presented, addressing issues related to deciding whether to evaluate, defining the evaluation problem, designing the evaluation, budgeting for the evaluation, collecting and analyzing data, and reporting the evaluation. Intended for both consumers of evaluation and individuals conducting evaluations, this reference may be of most use to evaluators who are relatively new to the field.

(22) Levin, H.M. Cost-effectiveness analysis in evaluation research. In M. Guttentag & E.L. Struening (Eds.), Handbook of evaluation research (Vol. 2). Beverly Hills, CA.: Sage, 1975.

This essay probes the important considerations involved in determining cost-effectiveness of programs in the context of educational evaluations. Theoretical as well as practical guidelines are provided.

(23) Linn, R.L., & Slinde, J.A. The determination of the significance of change between pre- and post-testing periods. Review of Educational Research, 1977, 47, 121-150.

This article reviews many of the major issues in the measurement of change from pretesting to posttesting periods and suggests possible alternatives. These authors share the general sentiment of many others in the field that, "more is expected from gain scores than they can reasonably be expected to provide."

(24) Lord, F.H. Elementary models for measuring change. In C.W. Harris (Ed.), Problems in measuring change. Madison: Wisconsin Press, 1963.

An early treatise on the problems associated with measuring change. Although this chapter rapidly becomes very technical, the early sections provide an intuitive explanation of the difficulties with using gain scores.

(25) Oakland, T. (Ed.). Psychological and educational assessment of minority children. New York: Brunner/Mazel, 1977.

This collection of essays provides a series of useful suggestions for those who would become more sensitive to the possible bias present in educational tests.

(26) Popham, W.J. Educational evaluation. Englewood Cliffs, N.J.: Prentice-Hall, 1975.

This is an introductory text, written in fairly non-technical language, about the field of educational evaluation. Evaluators of health education programs will find it simple to translate the book's contents to their own specialties.

(27) Popham, W.J. Modern educational measurement. Englewood Cliffs, N.J.: Prentice-Hall, 1981.

This is an up-to-date treatment of varied topics in the field of educational measurement. Norm-referenced measurement and criterion-referenced measurement are both considered, with the special applications of criterion-referenced assessment emphasized. Chapters on the relationship of testing to teaching and the measurement of affect will be of special interest to health educators.

(28) Popham, W.J., & Sirotnik, K.A. Educational statistics: use and interpretation (2nd ed.). New York: Harper and Row, 1973.

This is an easily read introductory text dealing with the fundamental types of statistical considerations needed by program evaluators. It is intended for those who are not particularly comfortable with mathematical approaches to statistics.

(29) Riecken, H.W., & Boruch, R.F. Social experimentation: a method for planning and evaluating social intervention. New York: Academic Press, 1971.

This significant contribution to our thinking about large scale social interventions, their design and appraisal, provides a useful analysis of the ways that the experimental method can be employed defensibly in connection with major social programs.

(30) Rivlin, A.M., & Timpane, P.M. (Eds.). *Ethical and legal issues in social experimentation*. Washington, D.C.: Brookings Institution, 1975a.

Rivlin and Timpane explore the sorts of legal and ethical issues to which evaluators of health education programs must attend.

(31) Scriven, M. Prose and cons about goal-free evaluation. *Evaluation Comment*, 1972, *3*, 1-4.

In this essay Scriven offers goal-free evaluation as an antidote to excessive preoccupation with the program staff's expressed objectives. Scriven argues that evaluators should attend to the results produced by a program, not the rhetoric of its program goals.

(32) Scriven, M. The methodology of evaluation. In R.E. Stake and others (Eds.), *Perspectives on curriculum evaluation*. Chicago: Rand McNally, 1967.

This seminal article was the first essay in which Scriven distinguished between the now commonly accepted formative and summative roles of evaluators. Scriven ranges over a wide variety of topics, emphasizing the importance of comparative appraisals of two or more programs' merits.

(33) Siegel, S. *Nonparametric statistics for the behavioral sciences*. New York: McGraw-Hill, 1956.

This is the classic treatment of nonparametric statistical techniques. Although a bit out of date these days, Siegel's text offers the most easily understood treatment of nonparametric statistical procedures. Because of the author's admitted zealousness in support of nonparametric techniques, those using Siegel's text should also consult a critique of it by Robert Savage, Journal of American Statistical Association, 52 (September 1957): 331-344.

(34) Suchman, E.A. *Evaluative research: principles and practice in public service and social action programs*. New York: Russell Sage Foundation, 1967.

In this volume, Suchman provides extensive coverage of the application of the experimental research model in conducting evaluations. Although evaluation has come a long way since this book was written, it provides a clear description of the predominant conceptualization of evaluation in the past decade.

(35) Tukey, J.W. *Exploratory data analyses*. Reading, Mass.: Addison-Wesley, 1977.

Creative approaches to displaying and understanding data are provided by Tukey in this excellent demystification of data analysis.

(36) Webb, E.J., Campbell, D.T., Schwartz, R.D., Sechrest, L., & Grove, J.B. *Nonreactive measures in the social sciences* (2nd ed.). Dallas: Houghton Mifflin, 1981.

This charming volume provides readers with a series of powerful and clever tactics to secure data, particularly of an affective nature, without sensitizing respondents to the evaluator's purposes.

(37) Weiss, C.H. *Evaluation research: methods of assessing program effectiveness*. Englewood Cliffs, N.J.: Prentice Hall, 1972.

Weiss offers a pithy overview of prominent program evaluation considerations including the formulation of questions to be addressed, the design of the evaluation study, and the utilization of evaluation results. A paperback, this brief book (160 pp.) offers an excellent introduction to what Weiss refers to as "evaluation research."

(38) Worthen, B.R., & Sanders, J.R. *Educational evaluation: theory and practice*. Worthington, Ohio: C.A. Jones, 1973.

This volume was one of the earliest compilations of various program evaluation models applied to education. Included in the evaluation theorists whose views are presented in this book are Stake, Cronbach, Scriven, Tyler and others. Worthen and Sanders have authored sections of the book and have included a series of original chapters by a number of evaluation specialists. While focused on educational evaluation in general, the volume is of substantial relevance to program evaluation of health education programs.

(39) Zdep, S.M., & Rhodes, I.N. Making the randomized response technique work. (Reprinted from *The Public Opinion Quarterly*, Winter 1976-1977, 41.)

This easily read essay describes the randomized response technique, a procedure used to obtain sensitive information from respondents more accurately than if respondents were directly asked about sensitive information.

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